COOK INLET/GULF OF ALASKA

2002 Fisheries Resource Monitoring Plan

Review Draft

Federal Subsistence Management Program
August 2001

TABLE OF CONTENTS

INTRODUCTION

Background

On October 1, 1999, the Secretaries of the Interior and Agriculture expanded federal subsistence fisheries management in Alaska under Title VIII of ANILCA. To meet this management responsibility, the Federal Subsistence Board established the Fishery Resource Monitoring Program to gather information on fish stock status and trends, subsistence harvest patterns, and traditional ecological knowledge. Improving the range of available information is crucial to effective fisheries management—both to protect fishery resources and to ensure the subsistence priority.

The Fishery Resource Monitoring Program funds studies to gather, analyze, and report information needed to manage and conserve subsistence fishery resources, address fisheries issues and priorities identified by the Regional Advisory Councils, minimize fishery conflicts, and address regulatory actions before the Board. The Board has adopted a unified approach where federal agencies work together with state, tribal and local organizations. The Monitoring Program is multi-disciplinary, blending together the biological and social sciences with traditional ecological knowledge to manage and conserve fishery resources and ensure priority is given to subsistence users on Federal Conservation units in Alaska.

The five Federal agencies work with Alaska Department of Fish and Game, Regional Councils, Alaska Native tribes, and other organizations to implement the Monitoring Program. The Federal Subsistence Board continues to rely on the special role of the Regional Councils to document fishery issues and data needs, and to provide recommendations on studies to implement the Monitoring Program. The purpose of this booklet is to document management issues and information needs, and to present the 2002 draft Fisheries Resource Monitoring Plan.

Study Selection Process

To develop an effective and scientifically sound monitoring program, local input on management issues and information needs is vital to ensure that the highest priority subsistence needs are addressed. During the winter 2001 and fall 2000 Regional Advisory Council meetings, the Councils were requested to provide this input as an important first step in the development of the 2002 Fisheries Resource Monitoring Plan. Subsistence users, the public, tribes, ADF&G, and federal agencies worked with the Regional Advisory Councils to identify issues and information needs. This information is summarized in the overview for each region.

To ensure studies are scientifically sound and address subsistence priorities, the Board has developed a process where interested parties submit study proposals that address the management issues and information needs identified by the Regional Councils. Proposals are evaluated by Fisheries Information Services Division staff and the Technical Review Committee using four ranking factors: strategic priorities, technical-scientific merit, past performance-administrative expertise, and partnership-capacity building, as detailed on the next page.

Ranking Factors for Federal Subsistence Fisheries Studies

Strategic Priorities

Ideal studies will be responsive to the issues and information needs identified within the Regional Advisory Councils. Studies should address the criteria listed below and must fully meet the first criteria to be eligible for federal subsistence funding.

1. **Federal Jurisdiction** – Issue or information needs addressed in studies must have a direct association to a subsistence fishery within a federal conservation unit.
2. **Conservation Mandate** – Risk to the conservation of species and populations that support subsistence fisheries and risk to conservation unit purposes.
3. **Allocation Priority** – Risk of failure to provide a priority to subsistence uses and risk that subsistence harvest needs will not be met.
4. **Data Gaps** – Amount of information available to support subsistence management (higher priority given where a lack of information exists).
5. **Role of Resource** – Importance of a species to a subsistence harvest (e.g., number of villages affected, pounds of fish harvested, miles of river) and qualitative significance (e.g., cultural value, unique seasonal role).
6. **Local Concern** – Level of user concerns over subsistence harvests (e.g., allocation – upstream vs. downstream, recreational use concerns, changes in size of fish).

Technical-Scientific Merit

Technical quality of the study design must meet accepted standards for information collection, compilation, analysis, and reporting. Excellent studies will have clear study objectives, appropriate sampling design, correct statistical analysis procedures, and specified progress and final reports.

Past Performance-Administrative Expertise

Investigators and their organizations should have demonstrated technical and administrative expertise to complete the study or have co-investigators or appropriate partnerships with other organizations to meet all requirements of the study. Studies must be non-duplicative with other studies. Principal and co-investigators should possess the expertise required to complete the study and have had successful experience with similar studies.

Partnership-Capacity Building

Studies must include appropriate partners and contribute to the capacities of agencies, local communities, and residents to participate in fishery resource management. Studies must have completed appropriate consultation about their study with local villages and communities in the area where the study is to be conducted (letters of support from local organizations add to the strength of a proposal). Investigators and their organizations should be able to demonstrate the ability to maintain effective local relationships and a commitment to capacity building.

For studies that best meet the four ranking factors and address Regional Council priorities, investigation plans are prepared to more fully evaluate the studies against the ranking factors and

Council issues. The investigation plans are reviewed by the Technical Review Committee, and the highest quality proposals that address urgent management concerns are then put together into a draft monitoring plan. Because local involvement and capacity building are critical components of the Monitoring Program, the draft plan is presented to the Regional Councils for their review. Public input is also gathered, and the draft plan is presented to the Federal Subsistence Board, along with Regional Council and public comments. For the 2002 Monitoring Plan, the Board will make decisions on the final plan in December, 2001. Most studies approved by the Board will begin during summer, 2002.

2002 Fisheries Resource Monitoring Plan

In 2002, Congress continued to fund implementation of the Fisheries Resource Monitoring Program. During 2002, the U.S. Fish and Wildlife Service will provide $5.25 million and the U.S. Forest Service will provide $2.0 million, for a total of $7.25 million for the continuation of existing studies and for new study starts. Money for new study starts, the 2002 Fisheries Resource Monitoring Plan, was first allocated by data type and geographic region to establish target budget levels for 2002 study funding:

- To maintain the multi-disciplinary approach of the Fisheries Resource Monitoring Program, two-thirds of the funding will be targeted at stock status and trends studies, and one-third at harvest monitoring and traditional ecological knowledge.

- The program also wishes to achieve an appropriate balance between the six geographic regions: Arctic/Kotzebue/Norton Sound, Yukon River, Kuskokwim River, Bristol Bay/ Alaska Peninsula/Kodiak, Cook Inlet/Gulf of Alaska, and Southeast Alaska. It is recognized that, based on the distribution of Federal lands and waters, the management issues confronting the Board are greater in some regions than others. The Yukon and Kuskokwim rivers, for example, have large Federal land areas, with intensive subsistence fisheries. A portion of the funding is also allocated to inter-regional studies to address statewide concerns.

Other considerations and policy decisions entered into recommendations for 2002 study funding:

- The Technical Review Committee recommended studies that attempt to balance across species (salmon, resident species), study type (e.g., fish weirs, test fisheries, sonar, genetics, escapement, biology, harvest assessment, subsistence harvest mapping), and geographically within a region (up river, down river).

- At the direction of the Board, a minimum of 60% of the study funding is dedicated to non-federal sources.

- The Board provided guidance on types of activities that they did not find appropriate for funding under the Fishery Resource Monitoring Program. Activities not eligible for funding include: a) habitat protection, restoration, and enhancement; b) hatchery propagation, restoration, enhancement, and supplementation; and c) contaminant

assessment, evaluation, and monitoring. These activities on Conservation System Units would most appropriately be addressed by the land management agencies.

- In 2002, the Partners for Fisheries Monitoring Program will be implemented at a proposed budget of $1.050 million. The Office of Subsistence Management will develop cooperative agreements to fill up to ten Partners for Fisheries Monitoring positions within tribal, rural, or state organizations, including both fishery biologists and social scientists. These positions will help develop and implement Resource Monitoring Program studies, communicate the results of fisheries studies to various audiences (Federal Subsistence Board, Regional Advisory Councils, Office of Subsistence Management, regional organizations), and help develop the capacity of rural residents to effectively participate in the fishery management process.

Many studies approved by the Board in 2000 and 2001 were designed to continue on for several years. In 2002, approximately $5 million is required to fund the continuation of 2000 and 2001 studies. When making study recommendations in 2001, the Committee recommended to the Board that approximately one-third of the Monitoring Program funds be made available to initiate new studies in 2002 and 2003. Using carryover balances from the Program's first year of implementation, the U.S. Fish and Wildlife Service and U.S. Forest Service are capable of providing $2.1 million for new studies in 2002 **(Figure 1).**

In 2003, we currently estimate that $1.2 million will be available for new studies. Unlike the 2002 process, investigation plans that are not selected for funding this year will not automatically become eligible for funding consideration next fiscal year. By insisting that investigators submit new proposals during the 2003 call for proposals, we will encourage submissions that: are current with Issues and Information Needs; addressed reviewer comments; and have updated their budgets. Investigators will need to submit new proposals requests for consideration of any new projects in 2003.

For the 2002 Fisheries Resource Monitoring Program, 120 new study proposals were submitted in February 2001. Of these, 48 were advanced for preparation of Investigation Plans. In addition, 9 studies submitted in 2001 that were not funded were advanced for reconsideration. The map below (Map 1) displays the geographic distribution of 57 studies advanced in 2002.

For the $2.1 million available for new studies, the Technical Review Committee recommended 31 studies for funding in 2002, including 14 stock status and trends studies and 17 harvest monitoring and TEK studies **(Tables 1 & 2).**

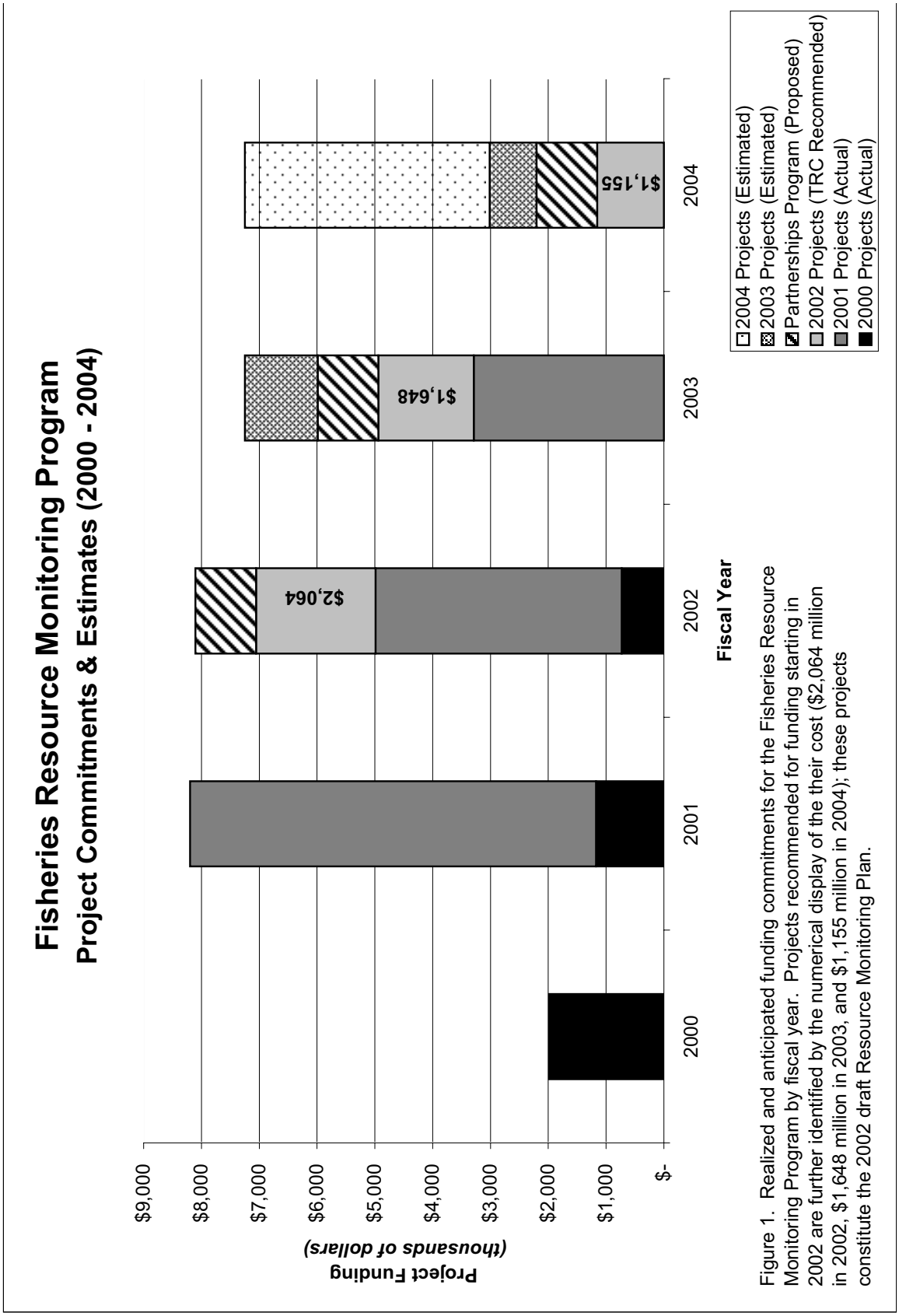


Figure 1. Realized and anticipated funding commitments for the Fisheries Resource Monitoring Program by fiscal year. Projects recommended for funding starting in 2002 are further identified by the numerical display of the their cost ($2,064 million in 2002, $1,648 million in 2003, and $1,155 million in 2004); these projects constitute the 2002 draft Resource Monitoring Plan.

Map 1. Distribution of projects for funding consideration under the 2002 Fisheries Resource Monitoring Program

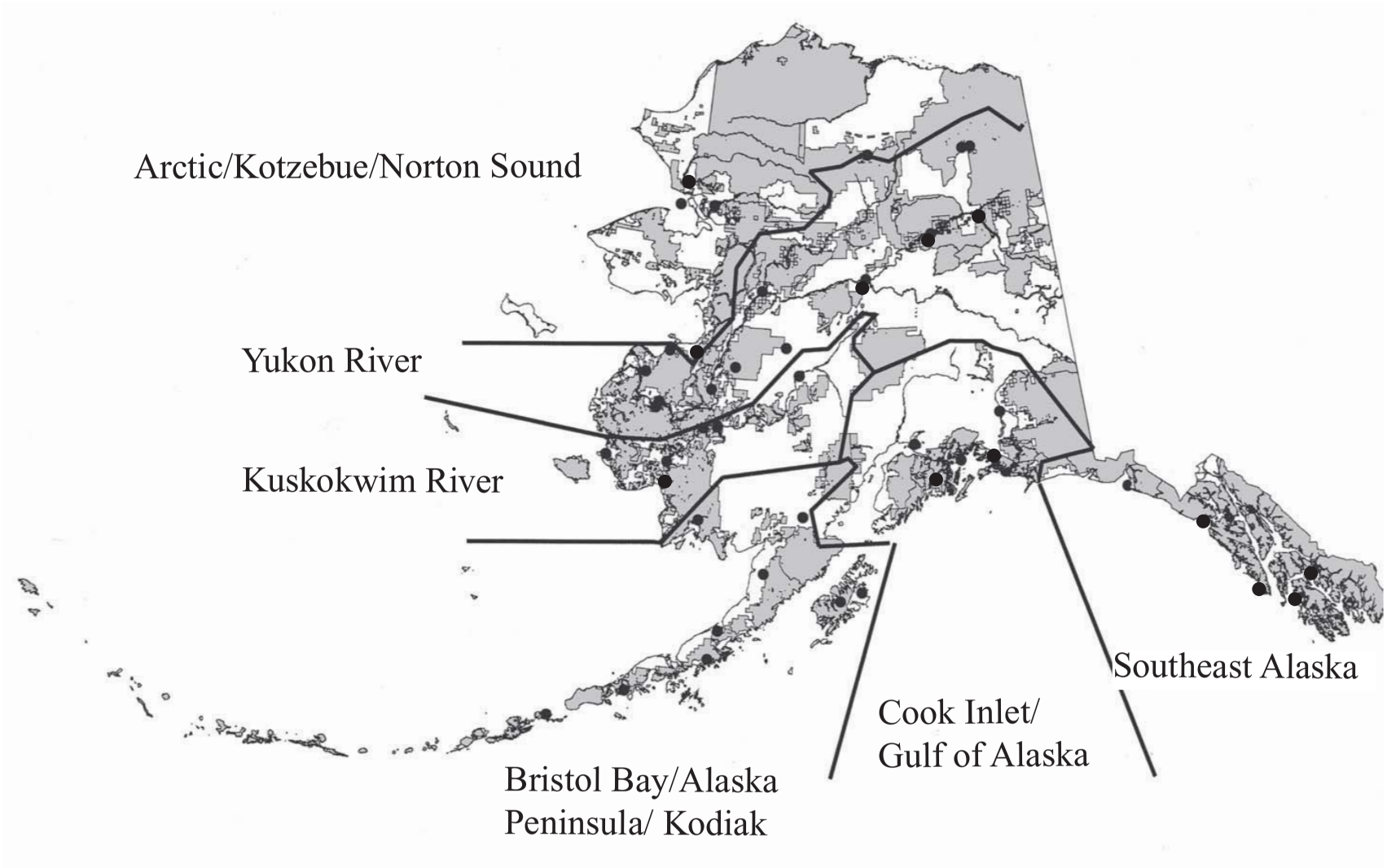


Table 1. Number of studies recommended for funding in fiscal 2002 by Technical Review Committee. Abbreviations for study information types are as follows: SST=Stock Status adn Trends, HM=Harvest Monitoring, TEK=Traditional Ecological Knowledge

	Unfunded 2001 Studies			New 2002 Studies			**All Studies**			**Recommended Studies**		
Geographic Region	SST	HM-TEK	Total	SST	HM-TEK	Total	**SST**	**HM-TEK**	**Total**	**SST**	**HM-TEK**	**Total**
Arctic, Kotzebue, Norton Sound	0	0	0	3	4	7	**3**	**4**	**7**	**1**	**3**	**4**
Yukon River	2	0	2	4	5	9	**6**	**5**	**11**	**3**	**3**	**6**
Kuskokwim River	0	0	0	3	4	7	**3**	**4**	**7**	**2**	**3**	**5**
Bristol Bay, Kodiak	4	0	4	2	3	5	**6**	**3**	**9**	**3**	**1**	**4**
Cook Inlet, Gulf of Alaska	1	1	2	3	3	6	**4**	**4**	**8**	**1**	**3**	**4**
Southeast	1	0	1	5	4	9	**6**	**4**	**10**	**2**	**3**	**5**
Inter Regional	0	0	0	3	2	5	**3**	**2**	**5**	**2**	**1**	**3**
Total	8	1	9	23	25	48	**31**	**26**	**57**	**14**	**17**	**31**

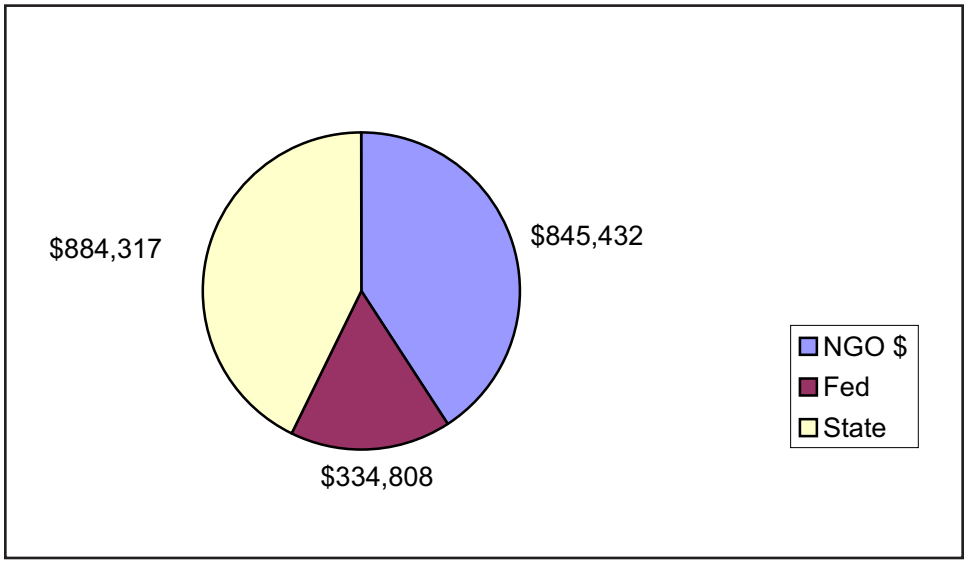
Table 2. Cost of proposals recommended for funding in 2002 by the Technical Review Committee. Funding shown in thousands of dollars

	SST Studies		HM-TEK Studies		**All Studies**		
Geographic Region	Target	Recommended	Target	Recommended	**Target**	**Recommended**	Difference
Arctic, Kotzebue, Norton Sound	$161.0	$20.0	$81.0	$182.0	**$242.0**	**$202.0**	$40.0
Yukon River	$275.0	$251.0	$138.0	$132.0	**$413.0**	**$383.0**	$30.0
Kuskokwim River	$275.0	$283.0	$138.0	$111.0	**$413.0**	**$394.0**	$19.0
Bristol Bay, Kodiak	$142.0	$134.0	$71.0	$91.0	**$213.0**	**$225.0**	-$12.0
Cook Inlet, Gulf of Alaska	$194.0	$229.0	$97.0	$97.0	**$291.0**	**$326.0**	-$35.0
Southeast	$282.0	$287.0	$141.0	$141.0	**$423.0**	**$428.0**	-$5.0
Inter Regional	$70.0	$78.0	$35.0	$28.0	**$105.0**	**$106.0**	-$1.0
Total	$1,399.0	$1,282.0	$701.0	$782.0	**$2,100.0**	**$2,064.0**	$36.0
Percent of Grand Total	67%	62%	33%	38%			

The 31 studies represent a balanced mix of studies that address Regional Council concerns, improve and strengthen fisheries management, quantify harvests, employ traditional ecological knowledge, and address regulatory actions before the Board. All studies are technically sound and expand upon the science-based monitoring program initiated in 2000 and 2001. For the 2002 studies recommended for funding by the TRC, approximately 40% of the funding would be directed at tribal and local organizations (Non–governmental Organizations or NGO), approximately 40% to ADF&G, and approximately 20% to federal agencies **(Figure 2).**

Recommendations by the Technical Review Committee represent the Draft Resource Monitoring Plan for 2002, and we look forward to gaining input from the Regional Councils and the public.

Figure 2. 2002 Funding Distribution



How to Provide Your Comments

We invite your review and comments on the draft 2002 Fisheries Resource Monitoring Plan. Regional Council members will have an opportunity to review the Monitoring Plan during Council meetings in the fall of 2001.

The Board welcomes your comments by October 31, 2001. These will be compiled along with the Regional Council comments and will be presented to the Board when it meets in December. Written comments may be submitted to:

USFWS Office of Subsistence Management
Attn: Richard Cannon
3601 C Street, Suite 1030
Anchorage, Alaska 99503
telephone: 1-800-478-1456 Fax: 907-786-3898
e-mail: Richard_Cannon@fws.gov

COOK INLET-GULF OF ALASKA REGION OVERVIEW

Issues and Information Needs

The primary input for identification of important issues and informational needs came from the Regional Advisory Council. These issues were most recently presented in the November 15, 2000 document: *Issues and Information Needs, Federal Subsistence Fisheries Monitoring Program*. Several key issues were identified.

- Interest in the Kenai River fishery resources
- Improvement of salmon assessment within Copper River drainages
- Improved capacity building among Copper River drainage communities
- Improved understanding of burbot and steelhead trout populations in the Copper River drainage.
- Documentation of subsistence harvest patterns and long-term trends in salmon abundance and distribution.

Regulatory issues of the Federal Subsistence Board also provided an important source of input for identification of issues and informational needs. In the Gulf of Alaska Region, two issues stood out:

- Reconsideration of the Kenai Peninsula rural determination
- Copper River chinook and sockeye salmon resources

The Federal Subsistence Board's decision to repeal rural status for the entire Kenai Peninsula precluded the need to focus assets from the Resource Monitoring Program on Kenai River issues. Copper River salmon issues are before the Federal Subsistence Board in the current regulatory cycle, and expected to be a management issue in the future.

Projects Forwarded for Investigation Plans

A total of 8 projects were forwarded by the TRC for development of Investigation Plans. These projects are located throughout the Cook Inlet/Gulf of Alaska region (Map 1). Investigators worked with reviewers from the Office of Subsistence Management to develop project objectives and methodology. Project budgets were submitted for each investigating agency and are summarized here by federal, state, and non-government organization (NGO) **(Table 1).**

Map 1. Locations of Projects Advance for Preparation of Investigation Plans

Cook Inlet

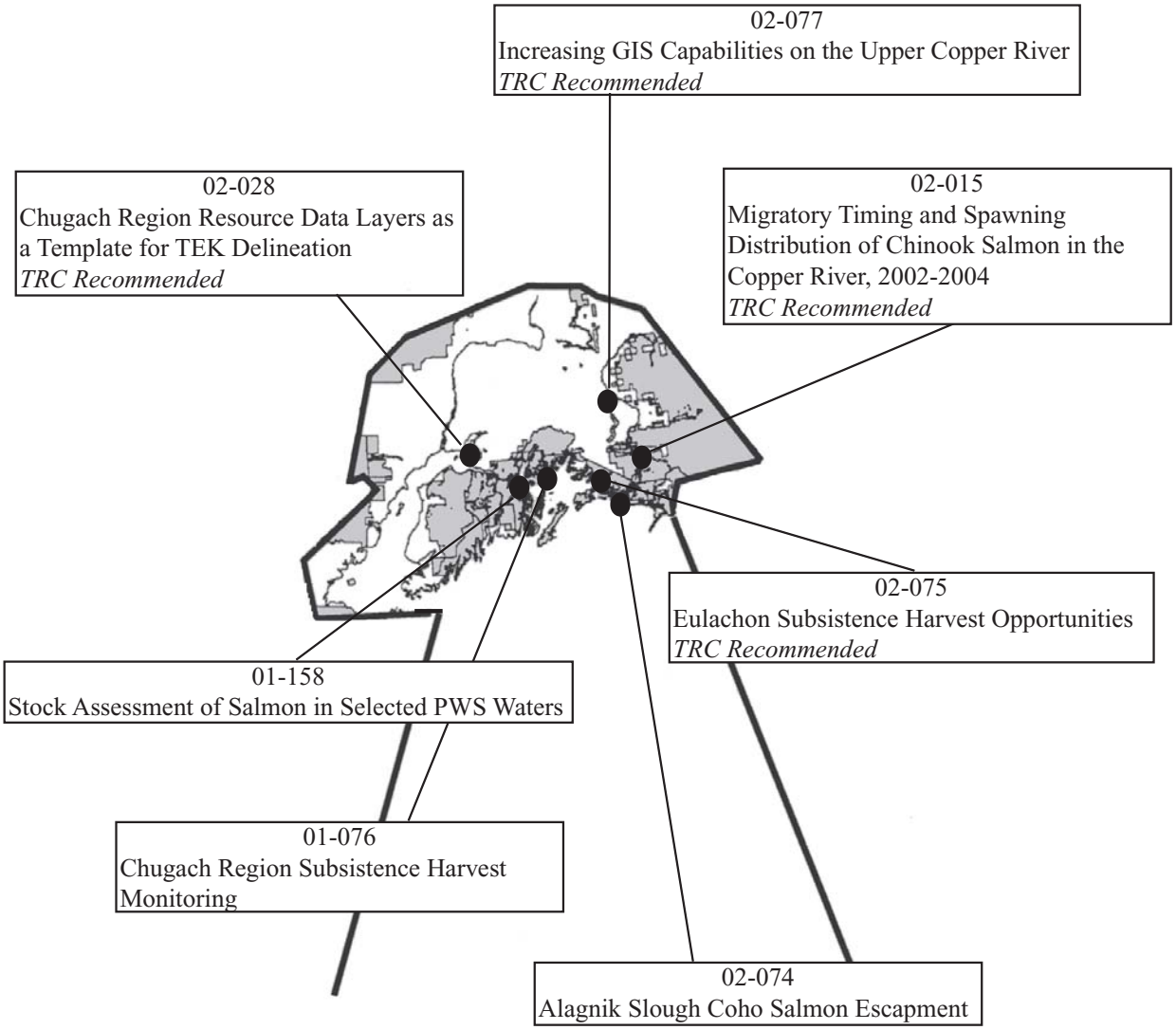


Table 1.

FY 2002 Cook Inlet/Gulf of Alaska Projects

Region 5. Cook Inlet, Gulf of Alaska

Type A . Stock Status & Trends

Doc #	Agency/Org	Title	NGO $	Fed$	State $	Total $
01-158	ADFG-SFD	Stock Assessment of Salmon in Shrode Lake and Billy's HolePrince William Sound, Alaska	$0.00	$0.00	$109,900.00	$109,900.00
02-015	ADFG-SFD, NVE	Migratory timing and spawning distribution of chinook salmon in the Copper River, 2002-2004	$57,200.00	$0.00	$172,100.00	$229,300.00
02-074	USFS, NVE, ADFG	Alaganik Slough Coho Salmon Escapement	$25,700.00	$8,500.00	$0.00	$34,200.00
Total			$82,900.00	$8,500.00	$282,000.00	$373,400.00

Type B. Harvest Monitoring/TEK

Doc #	Agency/Org	Title	NGO $	Fed$	State $	Total $
01-076	UAA, CRRC	Chugach Region Subsistence Harvest Monitoring Project	$110,000.00	$0.00	$0.00	$110,000.00
02-028	CRRC	Chugach Region Resource Data Layers as a Template for Traditional Ecological Knowledge Delineation	$57,800.00	$0.00	$0.00	$57,800.00
02-075	USFS,FADFG, NVE	Eulachon Subsistence Harvest Opportunities	$18,500.00	$600.00	$5,500.00	$24,600.00
02-077	CRNA, LGL	Increasing GIS capabilities in the upper Copper River: dedication of a workstation and software for local management of ongoing customary and traditional subsistence fish harvest mapping in the upper Copper River.	$14,600.00	$0.00	$0.00	$14,600.00
Total			$200,900.00	$600.00	$5,500.00	$207,000.00
Grand Total			$283,800.00	$9,100.00	$287,500.00	$580,400.00

As part of the project budget information, investigators were also asked to identify that portion of the project budget dedicated to local hire (personnel costs for which there is a hiring preference for federally qualified subsistence users) **(Table 2).** In addition to the project budget being requested from the Resource Monitoring Program, investigators were also asked to identify any matching funds being provided by their agency or organization **(Table 2).**

Table 2.

FY 2002 Local Hire and Matched Funds Report Cook Inlet/Gulf of Alaska

Region **5. Cook Inlet, Gulf of Alaska**

Type **A . Stock Status & Trends**

Doc #	Agency/Org	Title	Local Hire $	Matched $
01-158	ADFG-SFD	Stock Assessment of Salmon in Shrode Lake and Billy's HolePrince William Sound, Alaska	$19,600.00	$0.00
02-015	ADFG-SFD, NVE	Migratory timing and spawning distribution of chinook salmon in the Copper River, 2002-2004	$19,600.00	$15,100.00
02-074	USFS, NVE, ADFG	Alaganik Slough Coho Salmon Escapement	$25,500.00	$15,500.00
Total			$64,700.00	$30,600.00

Type **B. Harvest Monitoring/TEK**

Doc #	Agency/Org	Title	Local Hire $	Matched $
01-076	UAA, CRRC	Chugach Region Subsistence Harvest Monitoring Project	$52,000.00	$0.00
02-028	CRRC	Chugach Region Resource Data Layers as a Template for Traditional Ecological Knowledge Delineation	$14,905.00	$20,000.00
02-075	USFS,FADFG, NVE	Eulachon Subsistence Harvest Opportunities	$13,000.00	$26,100.00
02-077	CRNA, LGL	Increasing GIS capabilities in the upper Copper River: dedication of a workstation and software for local management of ongoing customary and traditional subsistence fish harvest mapping in the upper Copper River.	$0.00	$0.00
Total			$79,905.00	$46,100.00
Grand Total			$144,605.00	$76,700.00

Recommendations for Funding – Stock Status and Trends Projects

A total of four projects were advanced for development of Investigation Plans in the Stock Status and Trends (SST) category **(Table 3).** All four SST projects address salmon assessment: three sockeye or coho projects in Prince William Sound; and one chinook project in the Copper River. The investigator elected to withdraw project 02-076 (*Comparison of Aerial and Ground Escapement Index Surveys with Weir Counts in Selected Prince William Sound Waters*) from further consideration. Funding requested for SST studies totaled $388,200 for FY2002, which is in excess of the $194,000 available for the Gulf of Alaska Region SST project category.

Table 3. Proposed recommendation of FY 2002 Cook Inlet and Gulf of Alaska stock status and trends investigation plans for consideration. Proposed recommendations are shown with bold type and noted with a "Yes" in the "Recommendation" column.

			Requested Budget		
FIS#	Title	Recommendation	2002	2003	2004
	Prince William Sound - Salmon Stock Assessment				
01-158	Stock Assessment of Salmon in Selected PWS Waters	No	$109.9	$187.9	$112.1
02-074	Alaganik Slough Coho Salmon Escapement	No	**$34.2**	**$34.2**	**$34.2**
02-076	Comparison of Aerial and Ground Escapement Index Surveys with Weir Counts in Selected Prince William Sound Waters	No *a*	**$14.7**	**$25.0**	**$25.0**
	Copper River - Salmon Stock Assessment				
02-015	Migratory Timing and Spawning Distribution of Chinook Salmon in the Copper River, 2002-2004	**Yes**	$229.3	$185.2	$185.2
	GRAND TOTALS		$388.1	$432.3	$356.5
	TARGET BUDGET LEVELS		$194.0	$142.7	$401.9
	PROPOSED SELECTIONS		$229.3	$185.2	$185.2

a Proposal withdrawn from further consideration by investigator. No investigation plan submitted.

One or more reviewers on the Technical Review Committee (TRC) reviewed each of the three SST projects. The basis for their review was previously described, and focused on:

- strategic importance or need for the information
- technical and scientific merit
- past performance and administrative expertise of the principle investigators (PI's)
- partnership and capacity building.

The following sections of your book present more detailed information on each project advanced for development of an Investigation Plan. Included are a summary of what the project proposed to address and accomplish; the TRC recommendation for funding in FY2002; and their justification for that recommendation.

The three projects under consideration were all viable candidates for funding. Each project addresses assessment of a salmon population utilized by federally qualified subsistence users. Each project is technically sound. The investigators for each project addressed prior review

comments to directly incorporate rural organizations into the operation of the project.

After careful consideration, the TRC recommended funding of a single SST project: 02-015 *Migratory Timing and Spawning Distribution of Chinook Salmon in the Copper River* **(Table 3).** This is the only Copper River project and directly addresses an important issue of the Advisory Councils and Federal Subsistence Board. This recommended project adds value to an existing SST project (01-020 *Feasibility of Using Fishwheels for Long-term Monitoring of Chinook Salmon Escapement in the Copper River*). Native Village of Eyak is the investigator for 01-020 and is a co-investigator in the recommended FY2002 project.

The recommendation to not fund the remaining projects (01-158 *Stock Assessment of Salmon in Selected PWS Waters* and 02-074 *Alaganik Slough Coho Salmon Escapement*) is primarily driven by limited funding. As stated above, both projects are technically sound and have added significant capacity building aspects. Although obtaining additional escapement information in PWS would provide useful information for management of subsistence fisheries, the strategic importance of this information is secondary to escapement information for Copper River chinook salmon.

Recommendations for Funding – Harvest Monitoring and TEK Projects

There were four projects advanced for Investigation Plan development in the Harvest Monitoring and Traditional Ecological Knowledge categories **(Table 4).** These represented combined funding requests of $201,900, largely exceeding the $97,000 set aside for this type of study in this region.

Table 4. Proposed recommendation of FY 2002 Cook Inlet and Gulf of Alaska harvest monitoring and Traditional Ecological Knowledg investigation plans for funding consideration. Proposed recommendations are show with bold type, and noted with a "Yes" in the "Recommendation" column.

			Requested Budget		
FIS #	Title	Recommendation	2002	2003	2004
01-076	Chugach Region Subsistence Harvest Monitoring	No	$110.0	$110.0	$110.0
02-028	**Chugach Region Resource Data Layers as a Template for Traditional Ecological Knowledge Delineation**	**Yes** *a*	**$57.8**	**$28.6**	**$28.6**
02-075	**Eulachon Subsistence Harvest Opportunities**	**Yes**	**$24.6**	**$24.6**	
02-077	**Increasing GIS Capabilities in the Upper Copper River**	**Yes**	**$14.6**		
	GRAND TOTALS		$207.0	$39.6	$64.2
	TARGET BUDGET LEVELS		$97.0	$194.6	$200.6
	PROPOSED SELECTIONS		**$97.0**	**$53.2**	**$28.6**

a Originally proposed as a one-year project budgeted at $64.7. Per review recommendation, activities and budget were reallocated between two years.

a Originally proposed as a one-year project budgeted at $105.0. Per review recommendation, activities and budget were reallocated between two years.

a Originally proposed as a one-year project budgeted at $80.0. Per review recommendation, activities and budget were reallocated between two years.

One or more reviewers on the Technical Review Committee reviewed each of the seven projects. The basis for their review was previously described, and focused on:

- strategic importance or need for the information
- technical and scientific merit
- past performance and administrative expertise of the principle investigators (PI's)
- partnership and capacity building

The following sections of your book present more detailed information on each project advanced for development of an Investigation Plan. Included are a summary of what the project proposed to address and accomplish; the TRC recommendation for funding in FY2001; and their justification for that recommendation.

The three new projects submitted for consideration were all viable candidates: 02-049 (*Chugach Region Resource Data Layers as a Template for Traditional Ecological Knowledge Delineation*); 02-075 (*Eulachon Subsistence Harvest Opportunities*); and 02-077 (*Increasing GIS Capabilities in the Upper Copper River*). Project 01-076 (*Chugach Region Subsistence Harvest Monitoring*) is a modified submission of an unfunded project from FY2001. There were technical concerns with much of this project; particularly the frequent interviews to collect information from an area already well documented with recent interviews. However; the mapping portion of this project was sound and considered a strong complement to project 02-028.

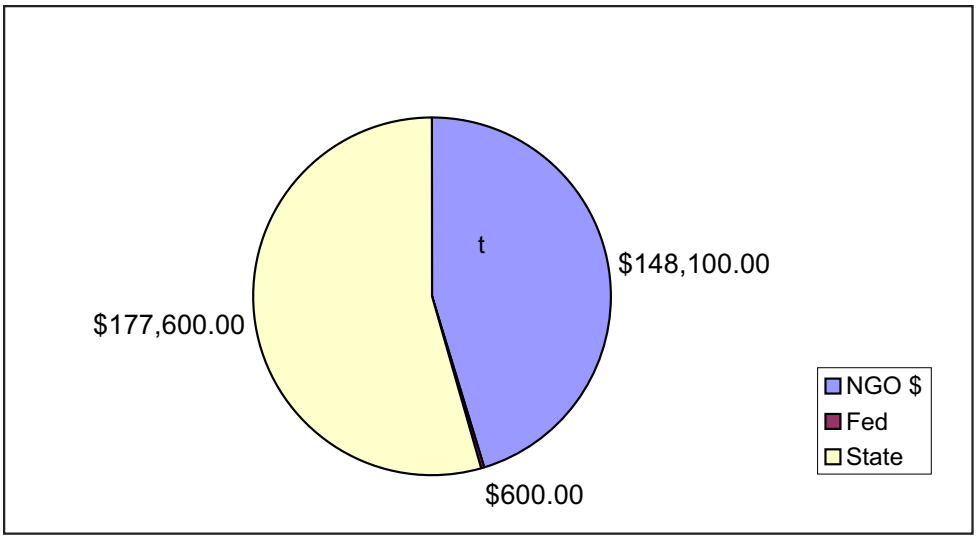
After careful consideration, the Technical Review Committee recommended funding for three projects, and a portion of the fourth; to total the entire $97,000 available. The projects were recommended for funding address important strategic priorities, employing sound technical methods. Among the projects recommended for funding are two that address Copper River issues (02-075 and 02-077). Eulachon were the subject of a Request for Special Action, and funding would also be provided to extend GIS mapping capabilities for the Copper River. This recommendation would also incorporate both TEK database work (02-028), as well as mapping work (portion of 01-076 to be added to project 02-028) in the Chugach Region.

Each of the projects recommended for funding contributes to partnerships and participation of local residents in fisheries research. The Copper River Native Association, Native Village of Eyak, and the Chugach Region Resouce Commission share responsibility for these projects.

Recommendations for Funding – Summary

In total, the four projects recommended for funding address important strategic priorities and employ sound technical methods. Budgets for those projects recommended for funding are summarized by each investigating agency or NGO **(Figure 1).** As recommended, spending for the FY2002 Fisheries Resource Monitoring Plan in the Cook Inlet/Gulf of Alaska region would be allocated as follows: 1% federal, 45% state, and 54% NGO.

Figure 1. FY 2002 Funding Distribution Fishery Resource Monitoring Program Cook Inlet/Gulf of Alaska



Project Descriptions, Recommendations and Justifications

You will find additional details about each project in the sections that follow. For each project, we have included a brief description of the issue, methods, the experience of the investigators, and the partnership components. For each project, the TRC's recommendation for funding is noted, as well as the justification for that recommendation.

The project descriptions are organized first by data category (SST and HM/TEK); and then project number within each data category.

NOT Recommended For Funding

01-158
Stock assessment of salmon in selected Prince William Sound waters

Investigator(s): U.S. Forest Service; Alaska Department of Fish and Game

FY2002 Budget: $ 109,900.00

Total Budget (3 years): $ 409,882.00

Geographic Area: Southcentral

Information Type: SST

Issues:

Federally qualified subsistence users harvest sockeye and coho salmon throughout Prince William Sound (PWS). Villagers from Tatitlek and Chenega approached USFS with concerns regarding increasing fishing pressure on sites by other user groups. Accurate data concerning escapement and harvest of these stocks by all user groups is important in order to manage for adequate salmon returns. This project will estimate the spawning escapement, calculate total return by age, and estimate harvest and effort by fishery at two sites in PWS. These sites were chosen as priorities because of their small run size and potential high utilization. Results from this study will help insure that sustained yield and fishing opportunities are provided, and that the health of the salmon stocks is not negatively impacted by recreational and subsistence fisheries.

Objectives:

1) Census the sockeye and coho salmon escapement into Shrode Lake and Billy's Hole from June 15 to September 24.
2) Estimate the age, sex, and length composition of salmon escapement into Shrode Lake and Billy's Hole from June 15 to September 15.
3) Estimate the age, sex, and length composition of the recreational and subsistence harvest of salmon in Shrode Lake and Billy's Hole from June 15 to September 15.
4) Estimate the effort and harvest of subsistence users at Shrode Lake and Billy's Hole
5) Estimate the effort and harvest of recreational anglers at Shrode Lake and Billy's Hole
6) Summarize the proportion of fishing effort by user group (recreational or subsistence); fishing trip duration; terminal tackle type (flies, bait or lures); and angler type (resident/ nonresident, guided/unguided).

Methods:

Spawning escapement will be censured through weirs at Billy's Hole and below the outlet of Shrode Lake. The weir and sampling box will be installed and operational by June 15 if ice conditions allow. When fish are present the gates will be opened and the fish counted as they migrate through the weir. Daily counts will be entered on the salmon weir count form.

A roving-roving creel survey (Pollock et al.1994) will be conducted every other day to estimate the daily effort by recreational and subsistence users, and estimate the salmon harvest by these two user groups. Creel surveys will consist of two parts- angler counts, and interviews. Counts will be used to estimate fishing effort of recreational anglers and subsistence users. Interviews will provide estimates of catch and harvest rates, and when combined with the estimates of effort will provide an estimate of catch and harvest by user group. Biological sampling to obtain age, sex and length (ASL) data of harvested salmon will also be a part of the interview.

Angler counts will be used to estimate fishing effort in units of angler-hours. The number of individuals actively participating in the fisheries will be recorded. Angler counts will be recorded on the mark sense ADF&G Angler-Count Form version 1.2.

During each survey day, the survey technician will travel throughout the fishery to conduct interviews and counts of all fishermen participating in the fisheries. Interviews consist of obtaining catch, harvest, user group (recreational or subsistence fisherman), angler type (guided, unguided, guides), terminal tackle, and general demographic information from individuals encountered in the fishery.

The subsistence harvest will be sampled for age, sex, and length (n = 301 allowing for 10% scale regeneration). Technicians will randomly sample one out of ten salmon harvested by subsistence users as part of the interview process.

The recreational harvest will also be sampled for age, sex, and length (n = 301 allowing for 10% scale regeneration). All harvested fish will be sampled from all recreational anglers interviewed within the sampling period.

Deliverables/Products:

Weir counts, harvests, and age data will be reported in Alaska Department of Fish and Game, Sport Fish Division, Fishery Data Series reports. These reports will be prepared by 31 May of each year following the project (2003 through 2004) and will summarize data collected. In addition, an electronic copy of these reports will be available to the Office of Subsistence Management via the Department web site. To ensure that managers and the public receive escapement information on a timely basis during the season, daily weir counts will be posted to the Department web site by noon of the following day and made available in paper form at the ADF&G office in Cordova. Collected scale samples will be archived in the Sport Fish office in Anchorage. Final edited copies of all data files will be archived by the Division of Sport Fish in Anchorage. Electronic files of biological data, in a standard ASCII format, and a data map will also be sent to RTS for archiving.

Experience of Investigator(s):

The Alaska Department of Fish and Game has a long history of weir operations, fisheries data collection and analysis. In particular, Sport Fish Division has many highly qualified, experienced, full time Biometricians. All Sport Fish projects undergo rigorous biometric review

by a project biometrician and review by the Regional Research Coordinator. The Division has conducted numerous creel surveys and maintained weir camps on the Copper River and throughout Prince William Sound. Matt Miller has 13 years of experience with ADF&G including creel survey studies and 10 years of research experience in Prince William Sound.

The U.S. Forest Service has been involved with fishery population monitoring and escapement projects for many years. Robert Spangler possesses a B.S. and M.S. in Fisheries Science and has worked in fisheries for 13 years with an emphasis on the ecology and monitoring of salmonids. He has worked in Prince William Sound for the past four years and is currently the Federal Subsistence Coordinator for the Glacier Ranger District.

Partnerships/Collaboration/Consultations:

Consultations have been completed with the villages of Tatitlek, Chenega, and the Chugach Regional Resources Commission, and they are all supportive of this proposal. Meetings in June 2001 with representatives from ADF&G, USFS, and village members allowed the agencies to present the proposal and address local concerns. The Alaska Department of Fish and Game, Division of Commercial Fisheries is supportive of this project.

Justification:

This proposal would provide funding for assessment of sockeye and coho in two small systems in PWS. Federally qualified subsistence users from Tatitlek and Chenega utilize both systems. At issue is poor assessment of small salmon stocks. An IP was developed for this project in FY01. However, other projects of higher priority were funded. Of principle concern was insufficient capacity building; and the recommendation to bring local organizations in as co-investigators and to directly fund them to provide seasonal staff.

Strategic Priority: Low. The Advisory Council identified no PWS issues. Both sites sustain some effort by federally qualified subsistence users. This is an achievable project that addresses the concern regarding data gaps for small stocks.

Technical Merit: Very High. Statistical objectives are clear and support management applications. Study designs, data collection, analytical procedures, and reporting for weir and harvest survey are sound. Both interim (annually in May) and final reports are specified and are adequate. The budget is reasonable for the proposed study. A cover letter was submitted with the proposal stating that consultations with rural organizations were ongoing as of June 30, and might result in subsequent changes to the budget.

Past Performance: Very High. The PI's clearly have the technical and administrative expertise to successfully complete this project.

Capacity Building: Moderate. Per reviewer recommendation, the PI's have consulted with rural organizations. As stated above, consultations are ongoing. A total of $19.6 K or 18% of the budget is available for local hire.

At question is whether issues outside of the Copper River proper are sufficiently compelling to provide limited funding.

Recommended For Funding

02-015
Migratory Timing and Spawning Distribution of Chinook Salmon in the Copper River, 2002-2004

Investigator(s): Sport Fish Division, Alaska Department of Fish and Game; Native Village of Eyak

FY2002 Budget: $ 229,300.00

Total Budget (3 years): $ 599,900.00

Geographic Area: Southcentral

Information Type: SST

Issues:

Harvests of chinook salmon in the Copper River are large compared to recent estimates of total run size. Because the majority of the overall harvest occurs downstream from, and prior to the subsistence fishery, information regarding run strength and timing is needed to manage the fisheries to ensure that adequate numbers of chinook salmon are available for subsistence use and escape to spawn.

Objectives:

1) Estimate the proportions of spawning chinook salmon in the Copper River in each major spawning tributary (Chitina, Tonsina, Klutina, Tazlina, Gulkana, and Chistochina rivers).
2) Estimate the proportion of chinook salmon spawning in the nine tributaries assessed during aerial surveys in 2000 (Little Tonsina River, Grayling Creek, St. Anne Creek, Manker Creek, Mendeltna Creek, Kiana Creek, Gulkana River, East Fork Chistochina River, and Indian Creek).
3) Describe the stock-specific migratory timing profiles at the point of capture in Baird Canyon where stocks are defined as all chinook salmon spawning in the Chitina, Tonsina, Klutina, Tazlina, Gulkana, and Chistochina rivers.

Methods:

This study will estimate the proportions of chinook salmon spawning in various tributaries of the Copper River and describe the migratory timing profiles of these stocks by radio-tagging a representative portion of the run in the mainstem river downstream from all spawning streams and tracking the tagged fish to their spawning destinations. Chinook salmon will be captured in fishwheels over the course of the run in the mainstem Copper River near Baird Canyon and implanted with radio tags. Subsequent migrations of these fish will be monitored with a combination of automated tracking stations positioned at various points throughout the drainage, as well as with aerial tracking surveys from a fixed-wing aircraft. Proportions of fish spawning

in various tributaries will be estimated as the ratio of numbers of radio-tagged fish migrating into a specific tributary to the total number of radio tags surviving and migrating into all spawning streams. The farthest upstream location for each fish in a tributary stream will be used to identify its spawning area. Migratory timing profiles of various stocks at the capture site will be identified from final locations and the date and time of initial capture. The Native Village of Eyak will be responsible for the capture and radio-tagging portion of the project and the Alaska Department of Fish and Game will be responsible for tracking the tags and drafting the final report.

Deliverables/Products:

Project findings will be reported annually in a State of Alaska Fisheries Data Series Report. Copies of the report will be available electronically from the State of Alaska web site. Hard copies of the report will also be available from ADF&G and will be widely distributed.

Experience of Investigator(s):

The Alaska Department of Fish and Game, Sport Fish Division has a well-developed process of fisheries research planning, execution, and reporting. The primary investigator, Matthew Evenson has over 15 years of experience in planning and conducting fisheries stock assessment research in Alaska with the ADF&G. Much of this research has focused on salmon, specifically studies relating to Chinook salmon in the Copper River and Tanana drainage streams. The Native Village of Eyak (NVE) is a federally recognized tribe based in Cordova, on the Copper River Delta. With a membership of over 500 people and a traditional territory encompassing nearly 29 million marine and coastal acres in the Eastern Gulf of Alaska, the NVE is the largest tribe on the Copper River. NVE has established resource and environmental management programs, and qualifies as a Mature Contractor under the Indian Self-Determination Act. NVE will lead the capture and radio tag deployment portion of the project and subcontract technical expertise from Anchorage-based LGL Alaska Research Associates, Inc., a branch of an international consulting firm. NVE's experience with the Copper River mark-recapture project (FIS 00 020) in 2001 will be invaluable to the project's design and logistics.

Partnerships/Collaboration/Consultations:

This project will directly promote interaction between NVE and ADF&G, thereby creating a positive working relationship between a major subsistence group (NVE) and management group (ADF&G) on the Copper River. This project gives NVE an opportunity for meaningful inclusion in the research and long-term management of Copper River salmon. NVE is already responsible for the mark-recapture project and this project will add new responsibilities that will broaden their experience in fisheries research techniques.

Justification:

This proposal would provide funding for radio telemetry work on Copper River chinook salmon. This proposal adds to the existing NVE tagging study (01 020 *Feasibility of using fishwheels for long-term monitoring of chinook salmon escapement in the Copper River*), which is designed to estimate total inriver abundance of chinook salmon. In this proposed study, chinook salmon would be captured in the lower river (Baird Canyon) fishwheels, tagged with radio transmitters, and tracked to spawning tributaries to estimate spawning distribution and stock-specific migratory timing. At issue is stock assessment for Copper River chinook, which supports one of the state's largest subsistence harvests.

Strategic Priority: High. This proposal addresses Copper River chinook salmon, which is a high priority for information needs. This proposal builds on the existing tagging study, and adds estimation of important stock-specific parameters (the funded study is designed to provide a total estimate of inriver abundance).

Technical Merit: Very High. This proposal is very similar to the existing ADFG tagging study, which has successfully provided credible estimates of abundance and distribution since 1999. In 2001, NVE demonstrated the feasibility of significant capture of chinook salmon with fishwheels in Baird Canyon (approximately 800 chinook were captured). After capture in Baird Canyon, this project proposes to track radio tagged fish with both stationary and mobile receivers. This subsequent tracking and recapture is independent of the secondary capture event with fishwheels in Wood Canyon planned for the original project (01 020) and should not impact that effort. The investigators should consider addition of two additional stationary receivers below the Baird Canyon capture site to provide more certainty as to the fate of any tagged fish that do not migrate above the first set of upriver receivers. This proposal also leverages existing ADFG investment in radio telemetry equipment (already purchased nine stationary tracking stations). Statistical objectives address management applications. Both annual and final reports are specified and adequate. The proposed cost appears reasonable for a large radio tagging study.

Past Performance: Very High. Both investigators clearly have the expertise to successfully conduct this work.

Capacity Building: High. Per reviewer comments on the original proposal, NVE was consulted, directly contracted, agreed to sign on as an investigator. A total of $57.2 or 25% of the total budget is contracted to NVE. Approximately $19.6 or 9% of the budget is for local hire.

This proposal provides an important value-added component to the existing NVE tagging study. NVE has demonstrated the feasibility of lower river capture with fishwheels and is co-investigator for this study.

NOT Recommended For Funding

02-074
Alaganik Slough Coho Salmon Escapement

Investigator(s): Cordova Ranger District, U.S. Forest Service; Native Village of Eyak

FY2002 Budget: $ 34,200.00

Total Budget (3 years): $ 102,600.00

Geographic Area: Southcentral

Information Type: SST

Issues:

Investigators will conduct population estimates for coho salmon spawning in tributaries in the Copper River Delta. Coho salmon in Alaganik Slough and its tributaries provide a *de facto* subsistence fishery for the residents of Cordova using rod and reel under sport fishing regulations. Sport fishing closures or reduced bag limits in recent years because of escapement concerns has reduced the subsistence opportunities. The ADF&G conducts aerial escapement index counts, but because of turbidity in the slough and canopy cover along the streams, the counts are highly variable. Collecting escapement data using impedance counters in two of the main spawning streams running into Alaganik Slough should provide accurate counts early enough in the season to help manage the fisheries and reduce unnecessary restrictions for subsistence users.

Objectives:

1) Obtain coho salmon escapement foot survey index counts for Mile 18 Creek and Goose Meadows Creek, the major spawning tributaries for the Alaganik Slough system.
2) Obtain counts with the use of impedance counters and validate with weekly foot and snorkeling surveys.
3) Share data with Alaska Department of Fish and Game for management of sport, subsistence and commercial fisheries.

Methods:

Impedance counters placed in Mile 18 and Goose Meadows creeks will enumerate the coho salmon coming into the systems. A picket weir would be used to funnel all the salmon through the counter. The counters will operate from August 15 to November 1, which will cover nearly all the coho salmon spawning run. The counter sensitivity will be calibrated with salmon of varying sizes captured downstream. The accuracy of the counter will then be assessed by having an observer count fish passing through the counter and checking the number recorded by the machine. The manufacturer (Smith-Root) claims 95% accuracy. The machine will be recalibrated if the deviation is greater than 10%.

Weekly foot and snorkel surveys conducted to further check the accuracy of the counters and provide an "area–under-the-curve" escapement estimate. Observer efficiency will be measured by tagging (Floy tags) fish captured near the counter, releasing the fish, and counting them after they have had a few days to disperse. Different colors of tags will be used each week in order to estimate stream residence time.

These procedures should provide an independent ground based escapement estimates, which can be compared to the aerial index escapement counts by ADF&G. Sharing daily counts from the impedance counter, and weekly foot surveys with the ADF&G and comparing these counts with aerial surveys may provide sufficient justification to allow a subsistence sport fishery to occur in order to meet local needs.

Local technicians hired by the NVE will be trained by the U.S. Forest Service in the operation of the impedance counter and weir maintenance. They will also be trained in stream foot surveys to count coho salmon entering the spawning system. Enhancing the local knowledge of stream escapement numbers will help manage these fish stocks, and if proven successful, would benefit the continuation of this project.

Deliverables/Products:

Escapement count data will be provided to ADF&G commercial and sport fisheries divisions on a weekly basis as well as the Federal Subsistence Manager. Annual reports will be completed at the conclusion of each season summarizing escapement counts into these two streams and problems encountered. At the conclusion of the project, a final report will be provided to ADF&G, the office of Subsistence Management, Fisheries Information Services Division, and the Alaska Resources Library Information System (ARLIS). This final report will include comparisons of impedence tube counts to the stream foot survey database and comparisons with the ADF&G aerial survey database. The final report will also discuss the impacts this information may have had on additional fishing time for subsistence use.

Experience of Investigator(s):

Tim Joyce of the USFS, has completed two restoration projects through the *Exxon Valdez* Oil Spill Trustee Council. While these projects were not the same as the proposed project, they did include overseeing budgets, compiling data, writing reports, and seeing the projects through to completion, which will be his primary responsibilities. Mr. Joyce co-authored two articles published by the American Fisheries Society and has a third article currently in press. He is a life member of the American Fisheries Society and a Certified Fisheries Professional with 25 years of fisheries experience in the State of Alaska.

The Native Village of Eyak (NVE) is a federally recognized Tribe based in Cordova, on the Copper River Delta. With a membership of over 500 people and a traditional territory encompassing nearly 29 million marine and coastal acres in the Eastern Gulf of Alaska, the NVE is the largest tribe on the Copper River. NVE has established resource and environmental management programs, and qualifies as a Mature Contractor under the Indian Self-Determination Act.

Kate Williams, Director of NVE's Environmental Programs, participated in survey design and data analysis in the study "Subsistence Harvests and Uses in Eight Communities Ten Years After the Exxon Valdez Oil Spill". With the Alaska Department of Fish and Game as the lead agency and the Chugach Regional Resources Commission representing Tribal natural resource programs, this study went a long way towards involving tribal natural resource programs as collaborators (Fall and Utermohle 1999).

Partnerships/Collaboration/Consultations:

This project gives the Native Village of Eyak (NVE) an opportunity for meaningful inclusion in the research and long-term management of the Copper River Delta coho salmon. The NVE will participate in all aspects of the project, from the initial weir construction, impedance tube calibration, stream foot surveys and discussions with the ADF&G. The US Forest Service will provide personnel for training the individuals from the NVE that will be working on the project. The NVE employees will provide critical logistical, technical, and field assistance, continuing to build the Tribal capacity to manage major fisheries assessment projects already firmly established with ongoing OSM projects. This project will also promote interaction between NVE and the ADF&G, thereby creating a positive working relationship between a major subsistence group (NVE) and management group (ADF&G). This project will utilize Tribal natural resource program capabilities in the publication of data. Any material related to this project (including peer reviewed scientific journal articles) shall be published in consultation with the Tribe and appropriate credit shall be given to NVE authors and technicians. At the conclusion of this project, NVE will have the capacity to operate the weir and counter as their own project and interact with ADF&G management biologists regarding coho salmon escapements on the Alaganik River system.

Justification:

This proposal would provide funding to assess coho salmon escapement into Alaganik Slough with existing and new methodology. Funding is provided to conduct both foot surveys and a weir/impedance counter. Validation would be conducted for both methods, and results further compared to ongoing aerial surveys. This proposal was submitted in FY01 as FIS 01-185, an IP was developed, but was not funded. At issue is improved assessment of coho salmon.

Strategic Priority: Low. Assessment of Copper River Delta coho salmon is by aerial survey. The degree to which aerial surveys accurately index abundance is at question. Subsistence harvest by federally qualified users occurs in areas open to commercial fishing in the Copper River District. The commercial fishery is the largest harvester of Copper River Delta coho, including Alaganik Slough; followed by the sport fishery. Currently, there are no provisions for subsistence harvest of salmon in the freshwaters of the Copper River delta. The proposal speaks to local use of Alaganik Slough, which occurs under state sport fishing regulations.

Technical Merit: Moderate. Per prior review comments from the FY01 submission, this proposal addresses validation of methodology. Impedance counter data will be validated with direct observations through a weir. These data will then be used to validate foot and aerial survey

results. Foot surveys will be conducted throughout the entire drainage instead of selected reaches as previously done. Observer efficiency will be estimated from tagged fish deployed at the weir. Statistical objectives for the various comparisons should be developed (*e.g. to test the hypothesis that the impedance counter estimates of coho abundance are the same as estimated from foot surveys, such that the estimates are within x%, y% of the time*). Both annual and final reports are specified and adequate. The budget appears reasonable for the proposed study.

Past Performance: High. Both investigators have the expertise to successfully conduct this work

Capacity Building: High. Per reviewer comments on the original proposal, NVE was consulted, added as an investigator, and directly contracted to conduct some of this work. A total of $25.7 K or 75% of the total budget is contracted to NVE. A total of $18.0 K or 52% of the budget is for local hire.

At question is whether issues outside of the Copper River proper are sufficiently compelling to provide limited funding.

NOT Recommended For Funding

01-076
Chugach Region Subsistence Harvest Monitoring Project

Investigator(s): Chugach Regional Resources Commission

FY2002 Budget: $ 110,000.00

Total Budget (3 years): $ 330,000.00

Geographic Area: Southcentral

Information Type: HM/TEK

Issues:

The project will update existing data, identify and document preferred tribal Subsistence Fisheries Use Areas of the native villages/tribes of Tatitlek, Chenega and Eyak and document, record and analyze subsistence needs and harvest levels as well as subsistence management issues that affect or have the potential to affect or constrain tribal subsistence harvests.

Objectives:

1) Identify and map Subsistence Fishery Use Area for each tribe and priority fisheries resource.
2) Review previous studies, update and modify gaps in existing data.
3) Enter data in spreadsheet (Microsoft Excel©), database (Microsoft Access©) and GIS (ArcInfo©).
4) Review and document current and projected subsistence management issues and constraints.
5) Prepare Final Report with summary of issues, recommendations for management options.

Methods:

This project will utilize CRRC's existing regional and tribal Integrated Natural Resource framework and personnel in the above mentioned Chugach Region tribes working closely with the principle investigator to carefully document the spatial and temporal subsistence fishery uses and trends. Data will be collected and reviewed from past studies, a complete and standardized subsistence survey for FY 2000, 2001 and 2002 will be performed by each tribe's natural resource specialist and accurate, concise and useful maps will be created for each tribal use area. All data will be recorded and placed into a GIS format useful for each tribe.

Deliverables/Products:

Develop a spreadsheet, database, and GIS. Also, create spring meeting comment and issue papers. Lastly, submit annual reports and a final comprehensive report.

Experience of Investigator(s):

Ms. Patty Brown-Schwallenburg is the Executive Director of the Chugach Regional Resources Commission (CRRC), assisting the seven member Tribes in the Chugach region to develop their Tribal natural resource programs, as well as assisting them in addressing all natural resource and environmental-related issues and concerns. She has worked for the past 17 years in such positions as
Tribal Administrator for her tribe, the Lac du Flambeau Band of Lake Superior Chippewa Indians, Society Administrator for the Native American Fish & Wildlife Society, Office Manager of the Bering Sea Fisheries Development Fund, and as a private consultant, assisting Alaska Native communities in obtaining funding for natural resource management programs, and setting up their natural resource program administrative systems. CRRC and the previous organizations that Ms. Brown has operated have consistently met all standards of proper management, including annual program and financial audits.

Partnerships/Collaboration/Consultations:

A meeting will be held with each of the participating Tribe's natural resource specialists and CRRC natural resource personnel and the Principle Investigator at the beginning of the project in Anchorage to discuss the project objectives and map out each Tribe's first draft of their subsistence fishery use areas. The Tribal natural resource specialists will take the maps and meeting summaries back to their village/Tribe and distribute for public review. A village/Tribal meeting will be held at each Tribe's location to further review and comment on refining the use area maps, and reviewing and updating existing information and conducting the new surveys. Each spring a village meeting will be held to review subsistence concerns and issues and these will be documented and submitted to federal subsistence managers.

Justification:

This project proposes to evaluate, verify and update existing subsistence harvest data by means of a series of workshops, village meetings and revised tribal harvest surveys for five villages. The Principal Investigator will collaborate with a University of Alaska senior project advisor and a UAA intern. Objectives include GIS and data collection training for tribal members involved in Natural Resources management, workshops on harvest survey methods and design, GIS maps of subsistence Fishery Use Areas, identification of existing data gaps, documentation of TEK, and preparation of a final report with management recommendations.

Much of the expense in this project is due to a large number of interviews in areas that have current interview information. This work is of lesser priority at this time. The mapping portion of this project is valuable and it is recommended to incorporate this portion of the project into 02 –28.

Recommended For Funding with Modification

02-028
Chugach Region Resource Data Layers as a Template for Traditional Ecological Knowledge Delineation

Investigator(s): Chugach Regional Resources Commission; U.S. Forest Service

FY2002 Budget: $ 57,800.00

Total Budget (3 years): $ 114,964.00

Geographic Area: Southcentral

Information Type: HM/TEK

Issues:

GIS resource information is available for the Cook Inlet area. It resides within several sources outside of the Tribes, and is not readily available to the Tribal Resource Specialists, Village Councils, or Tribal members. This information needs to be transferred to CRRC and to each Tribe's TNRM information systems to make them useful in the analysis and management of their subsistence uses and needs.

Objectives:

This project is being proposed for three years. The goals for the OSM funded portion of this project are to:

1) Develop and implement CRRC's Regional Tribal Natural Resource Management GIS Base Map and associated individual Tribal Traditional Use Area Base Maps.
2) Utilize, modify and merge into CRRC's GIS/Database system, existing resource and geo referenced data (anadromous stream catalog data, community profile database data, subsistence use maps, vegetation distribution data, human use patterns, as well as other geo-referenced data to formats useful for each Tribe).
3) Make the GIS available to Tribal Natural Resource Specialists and Tribal Elders in Cook Inlet, Prince William Sound and the Copper River Delta.

Methods:

1) Set up base maps and shape files for CRRC's regionwide system and for each Tribe's traditional resource use area.
2) Provide training for CRRC personnel and provide technical support to Tribes.
3) Data collected under Project FIS 01-076 and data previously collected will be entered into CRRC's Regional Tribal Natural Resource Management GIS/Data Base system.

Deliverables/Products:

An integrated region wide CRRC Tribal Natural Resource Management subsistence GIS and related database will be developed and implemented, utilizing ArcInfo© 8.1 GIS and related MS Access database. The information will be web accessible using ArcIMS© and associated software so that each Tribe can access and utilize the databases. In collaboration with Tribal entities, Federal staff, and state agencies, the CRRC Natural Resources Management staff will prepare a written report that includes discussion, analysis, and summaries of qualitative and quantitative data transferred during the data compilation phase, and a review of program development, stewardship, and Tribal information-sharing infrastructure.

Experience of Investigator(s):

CRRC administers over $2 million worth of projects in the Chugach Region. These projects are funded by agencies such as the Exxon Valdez Oil Spill Trustee Council, Bureau of Indian Affairs (P.L. 93-638 contract and other grants), Alaska Department of Community and Regional Affairs, the Administration for Native Americans, and the Alaska Science and Technology Foundation. CRRC has experience in restoration and enhancement projects and is committed to providing its' member Tribal councils with the resources to perpetuate their subsistence lifestyle into the twenty-first century. In order to accomplish this CRRC is currently finalizing a Chugach Region Integrated Tribal Natural Resource Management Plan and associated programs and projects as well as assisting each of the Chugach Tribes in developing and implementing their own Tribal Natural Resource Management Plans and programs, among other things.

Partnerships/Collaboration/Consultations:

Chugach Regional Resources Commission is partnering with U.S. Forest Service. The CRRC will be assisted by Geo North, a GIS consulting company in Anchorage, who will provide technical assistance.

Justification:

This proposed three-year study would provide subsistence harvest to select tribes in the region including Tatitlek, Chenega, Eyak, Port Graham and Nanwalek villages (Federally recognized) and the non-Federally recognized tribes of Valdez and Qutekcak located in Seward. Objectives for the federally-funded portion of the project complements overall CRRC objectives, and matching funds are being brought to the project to this end. This IP clarifies that infrastructure development and funding permanent staff will be taken care of by funding other than that from the Fishery Resource Monitoring Program. Objectives for the federally-funded portion of the project include making GIS databases available to each tribe including: traditional subsistence use area base maps for fish, wildlife, and other wild resources; TEK; and harvest data. These objectives are appropriate to TEK/Harvest Monitoring projects. The proposal addresses a Federal subsistence fishery, and addresses SRAC/local residents' concerns and needs. The proposal takes a broad view of all subsistence resources; matching funds will assist with documenting the portion of the project that addresses resources other than fish. The project develops capacity in that CRRC is lead for the project, and will provide training for CRRC personnel to maintain the

subsistence resource database. Costs are reasonable, and matching funds are being brought to the project. This project will be conducted by a local organization, in partnership with seven tribal entities.

Per reviewer recommendation, the harvest mapping portion of 01 076 should be incorporated into this project and budgeted accordingly.

Recommended For Funding

02-075
Eulachon Subsistence Harvest Opportunities

Investigator(s): Cordova Ranger District, U.S. Forest Service; Native Village of Eyak; Alaska Department of Fish and Game

FY2002 Budget: $ 24,600.00

Total Budget (2 years): $ 49,200.00

Geographic Area: Southcentral

Information Type: HM/TEK

Issues:

Investigators need to determine if sufficient harvest opportunities are available for eulachon, *Thaleichthys pacificus* on the Copper River Delta to meet the subsistence needs of Cordova residents. Eulachon are found in several different systems at different times but can be unpredictable because of run strength, timing, and shifts in location. A commercial fishery on the Copper River eulachon run has the potential to impact subsistence usage if ample opportunity is not available.

Objectives:

1) Identify key eulachon harvesters in the community to obtain information on the presence of eulachon runs at traditional harvest areas.
2) Check local streams and traditional harvest areas on a weekly basis throughout the late winter and spring to check for the presence of eulachon.
3) Estimate the harvest of eulachon from each location where subsistence fishing occurs, the number of days eulachon are present, and if possible the abundance at each location.
4) Using past Community Profile Database harvest estimates, determine whether existing runs provide ample harvest opportunity.
5) Work with the ADF&G and user groups to develop a subsistence harvest plan for the Copper River.

Methods:

Investigators would identify key eulachon harvesters, ADF&G biologists and others in the community that could provide information on when eulachon may be present. In addition the investigators would make weekly checks of streams and harvest areas to determine the presence of eulachon. Investigators would note the accessibility (within ¼ mile of each side of the Copper River highway) of fish in these areas for subsistence use and if possible estimate their abundance in terms of number of fish by conducting a stream survey on clear water streams and counting the number of fish captured with a 12”- 16” diameter dip net at predetermined capture sites on silt laden systems. A sample of 450 fish will be taken at the beginning, middle and end of the runs

from each location that eulachon are present to collect age, weight, length, sex and fecundity and spawning condition information. Surveys of subsistence fishers will be conducted to estimate the number of users at each location, their harvest and other information relating to that day's subsistence experience. Using information collected from a recent Community Profile database on eulachon subsistence needs and the estimate of eulachon abundance and harvest that occurred from these samples a determination will be made if ample harvest opportunity was provided to the rural subsistence users on the Copper River Delta. The compilation of this information will be provided to the NVE, ADF&G and USFS for use as a base to develop a harvest management plan providing a subsistence priority use of the eulachon resource.

Deliverables/Products:

An annual report would be written after the first year of the project and a final report would be written after the second year of the project. The reports would include information on when and where eulachon were available for subsistence harvest, how often and how long subsistence users fished, how many eulachon were harvested, and estimate of eulachon abundance, and if the subsistence needs of the users were met. These reports will be written by the USFS, Cordova Ranger District, reviewed and edited by the NVE and ADF&G, prior to submission to the Office of Subsistence Management, Fisheries Information Services Division. Information contained in these reports could be used in developing a eulachon management plan on the Copper River Delta providing a subsistence priority.

Experience of Investigator(s):

The Native Village of Eyak has successfully conducted and administered a number of subsistence projects for the *Exxon Valdez* Oil Spill Trustee Council. These projects required budget oversight, data compilation, fieldwork, and report writing, which was peer reviewed and accepted by the Chief Scientist for the Trustee Council.

The primary investigator will be Tim Joyce, a certified Fisheries Professional by the American Fisheries Society, who has 25 years of fisheries experience in the State of Alaska. He has completed two projects as the principal investigator for the *Exxon Valdez* oil spill Trustee Council, which included final peer reviewed reports. He has co-authored two articles with a third article currently in press in American Fisheries Society publications.

Steve Moffitt has worked with the ADF&G as a research biologist for 12 years. He has been working on eulachon stock assessment projects in the Copper River area since 1998.

Partnerships/Collaboration/Consultations:

The USFS and ADF&G will provide the information needed for this project to follow the scientific approach in collecting data. The NVE will administer the project, hire and equip the personnel needed to conduct the sampling and collect information. A close working relationship between all groups will be needed in order to train field personnel. The information will be summarized and draft reports will be written by the USFS. The NVE and ADF&G will

review and edit the reports prior to the completion of a final draft for submission. This project encourages the local involvement developing a management plan for the Copper River Delta eulachon stocks emphasizing a subsistence priority.

Justification:

This three year project proposes to identify subsistence eulachon users, determine if existing runs provide sufficient subsistence harvest opportunity, and with ADF&G and commercial harvesters, develop a harvest plan for the Copper River. This subject was identified as a SRAC issue at their last meeting, and was the subject of a Request for Special Action in 2001. The Copper River and tributaries such as the Alaganik Slough and Ibeck Creek border on federal lands where primarily federal authority for federal management of subsistence exists. These waters also have sections that border on native land and in some cases on state land. The proponents of the proposal reflect the nature of the multiple management of the area. NVE will conduct the study. The Eyak Tribal Council supports the project.

Recommended For Funding

02-077
A GIS Atlas of Customary and Traditional Non-salmon Harvests in the Upper Copper River

Investigator(s): Copper River Native Association; LGL Alaska Research Associates, Inc.

FY2002 Budget: $ 14,600.00 **Total Budget (1 year):** $ 14,600.00

Geographic Area: Southcentral **Information Type:** HM/TEK

Issues:

The goal of this project is to provide a GIS workstation to the Copper River Native Association (CRNA) for mapping data from current and recent subsistence harvest studies. CRNA will collaborate with LGL Alaska Research Associates, Inc. (FIS 01-096) to manage the harvest data and produce maps, and will thereby gain substantial training in GIS use and applications. The current proposal includes a two-day workshop in Anchorage to introduce a CRNA member to the ArcExplorer© software and to the workstation. LGL will then work with CRNA to build on this experience in the course of FIS 01-096.

The ability to immediately use the proposed workstation on the harvest mapping project makes this proposal an excellent, if not unique, opportunity for CRNA to learn current techniques while applying them to a real-world, in-house project. CRNA would gain some familiarity with GIS capabilities under 01-096 anyway; with its own GIS workstation, CRNA would also be able to retain harvest data locally, develop additional maps as desired, and produce and distribute all materials. The combination of equipment, training, and an applicable project (FIS 01-096) makes this an excellent opportunity for CRNA to develop meaningful GIS capabilities.

Objectives:

1. Provide a desktop workstation that will use harvest survey data collected in 2000 and 2001 to produce a series of GIS-based maps to:
    - Show trends in subsistence fish use and to show specific linkages between community demographic features and fish harvests.
    - Map data in ways that will allow comparisons to future subsistence use patterns.
    - Produce both hard copy and CD-ROM versions of maps.

Methods:

This workstation would be used to help map data collected from households of people residing in the five CRNA compacting villages, as part of the cooperative agreements under FIS 01-096.

Two base maps will be created to show the location of subsistence harvest sites in the Upper Copper River. The first base map will show salmon fishwheel and other subsistence sites for salmon on the Copper River. The second base map will show all lakes in which non-salmon fish are harvested.

An additional 50-70 maps will then be created to provide in-depth views of the CRNA subsistence fisheries. These maps will go beyond the simple presence/absence shown by the base maps, and will show important trends such as where different communities fish, how heavily different sites and lakes are fished, what gear types are used, which species are targeted, and the relative subsistence harvest by different user groups. The entire map series will be archived on CD-ROM.

Harvest data will come from at least two sources: 1) Subsistence salmon fishery evaluations completed by ADF&G, CRNA, CVC, and others in 2000 (e.g., FIS 00-040), and 2) Surveys of customary and traditional non-salmon harvests conducted by ADF&G, CRNA, and others in 2001 (e.g., FIS 01-110). Data from annual surveys of subsistence salmon harvests conducted by ADF&G may also be included, depending on coverage and data availability. The study area includes households north of Mile 60 and south of Paxson (mile 185) on the Richardson Highway, northwest of Mile 24 on the Edgerton Highway, south of Mile 24 on the Glenn Highway (Tok cut-off), and east of Mile 120 on the Glenn Highway. Data from these households would be mapped wherever these households fished, and regardless of village membership.

LGL's GIS staff will design and develop the map series in conjunction with CRNA, and will produce the final maps and associated deliverables. In the process, CRNA gain real experience in map design, data entry and manipulation, and map production.

Deliverables/Products:

1. From CRNA's portion of project FIS-096
   - A series of 50 – 70 maps detailing community subsistence fish harvest patterns throughout the upper Copper River drainage.
   - Demonstration of GIS mapping potential to subsistence groups in the upper Copper River drainage.
   - Final report that describes maps, summarizes results, and identifies appropriate follow-up projects.
   - CD-ROM of maps produced by project.

2. From the funds requested here
   - A complete GIS workstation able to manage, create, and distribute the maps produced by FIS-096.

- A two-day GIS training course in Anchorage.

Experience of Investigator(s):

The Copper River Native Association (CRNA) is based in Copper Center, on the upper Copper River. CRNA will gather 2001 data as part of customary and traditional harvest survey (FIS 01-110), then work with LGL Alaska Research Associates, Inc. to design and oversee map production as part of FIS 01-096. CRNA has participated in several recent harvest survey projects, including surveys of customary and traditional fish and wildlife harvests. LGL will collate data from harvest surveys conducted in 2000 (FIS 00-040), help design the maps, then produce them on hard copy and on CD-ROM. LGL is an international environmental consulting firm that has successfully collaborated with numerous native groups on fishery and harvest survey projects over the last 30 years. LGL has a GIS workgroup that has worked with First Nations (Canada) GIS applications since 1991, and provides mapping support to approximately 50 projects per year. LGL's GIS work includes inventories of traditional and current resource use, inventories of cultural and heritage resources, training and support of the development of GIS capabilities by First Nations, resource and land management, support to treaty and land claims negotiations including land selection, watershed and habitat restoration programs, and assessment of cumulative environmental impacts within traditional territories. LGL has also assisted with designing, conducting, or analyzing numerous harvest surveys over the past 20 years.

Partnerships/Collaboration/Consultations:

The Copper River Native Association (CRNA) will lead this project. LGL Alaska Research Associates, Inc. will work with CRNA to finalize specific maps to be produced, and then use GIS software to map data provided by CRNA. CRNA will review map drafts to provide guidance throughout the project. Data will come from ADF&G customary and traditional surveys in 2000 (salmon), 2001 (non-salmon), and from annual salmon harvest surveys conducted by ADF&G Sport Fish Division. The ADF&G, Divisions of Sportfish and Subsistence, have been consulted to ensure that this process is technically feasible, that the maps will be compatible with existing ADF&G maps, and that the data provided from surveys can be used to generate the proposed maps. LGL's GIS workgroup was consulted to determine production and labor costs for producing 50-100 maps, given the type and format of data provided.

Software and equipment consultations have been conducted with ESRI (www.esri.com) to ensure that the requested funds are appropriate for the project objectives. ESRI is a leading GIS company that has been developing GIS software since 1969 and currently distributes all the workstation equipment and software needed for this project.

Justification:

This project proposes to provide a desktop workstation that will use harvest survey data collected in 2000 and 2001 to produce a series of GIS-based maps to show trends in subsistence fish use, and specific linkages between community demographic features and fish harvests. The mapped

data will allow comparisons to future subsistence use patterns. Maps will be produced in hard copy and on CD-ROM. This proposal is viewed as an implementation item under FIS 01 096. It is specific in terms of methods, procedures, and staffing and is highly cost-effective. This is a follow-on project, utilizing data that were gathered during those household harvest surveys conducted in 2001. This project will not be duplicative but will build on the 2001 project. This proposal addresses a federal subsistence fishery within Forest Service-administered and primarily National Park Service-administered lands. This project will provide a means to manage and access ongoing computerized mapping needed to manage subsistence resources, and will address all fish resources. Study objectives are clear and achievable. Methods are appropriate, and the budget seems reasonable for the study. The proposers are currently involved in FIS projects, and LGL has a long and successful track record. CRNA will lead the project. Results will be readily available to the cooperating villages, in a commonly-used format compatible with ADFG's.

INTER-REGIONAL OVERVIEW

Issues and Information Needs

- A number of Regional Advisory Councils have identified issues and information needs that apply to more than one region or have statewide application. There is continued interest in:
    - Organization of existing, as well as new, fisheries information in a way that can be easily located and obtained by tribal, state and federal interests;
    - Development of consistent methods for subsistence harvest monitoring and conducting Traditional Ecological Knowledge studies;
    - Improvement of methods used to set salmon spawning goals and sustain subsistence harvests;
    - Expanded communication and coordination among regions to better achieve resource stewardship and more effectively deploy program funds through coordinated planning.

- The Federal Subsistence Board decided it would not fund studies dealing with hatchery propagation, restoration, enhancement, and supplementation; habitat protection, restoration, and enhancement; or contaminant assessment, evaluation, and monitoring.

- Regulatory issues can also be used to identity issues and information needs. Two statewide regulatory proposals were submitted in 2002. One seeks changes to existing subsistence fisheries practices, while the other seeks to establish a new federal subsistence permit for marine fishes.

Studies Forwarded for Investigation Plans

- The Technical Review Committee advanced a total of five studies for Investigation Plan development. A total of $178.1 thousand would be needed to fund these studies in fiscal year 2002, while only $105.0 thousand is available (Tables 1, 2, and 3).

- In making funding recommendations, the Technical Review Committee considered strategic needs for the information, technical merits of the study, performance ability of investigators, and contributions to local partnership and capacity building.

Recommendation Process—Stock Status and Trends Studies

- Three studies were advanced for Investigation Plan development in the Stock Status and Trends category (Table 1). Each of these studies addresses a different general issue: Subsistence Fishery Management Practices, Fishery Information Access, and Catch-And-Release Fish Mortality.

Table 1. Proposed recommendation of 2002 Inter-Regional stock status and trends investigation plans for funding consideration. Proposed recommendations are shown with bold type, and noted with "Yes" in the "Recommendation" column.

			Requested Budget		
FIS #	Title	Recommendation	2002	2003	2004
02-025	**Development of General Method for Calculation of Sustainable Subsistence Harvest**	**Yes**	**$45.7**	**$74.7**	**$48.4**
02-069	**Develop Shared AYK Fishery Database**	**Yes** *a*	**$31.9**		
02-071	Strategy for Assessing Release Mortality of Sport-Caught Fish in Western and Interior Alaska	No	$59.0	$187.2	
	GRAND TOTALS		$136.6	$261.9	$48.4
	TARGET BUDGET LEVELS		$70.0	$159.7	$159.7
	PROPOSED SELECTIONS		**$77.6**	**$74.7**	**$48.4**

a This proposal reached the investigation plan stage in 2001 as study 01-016. Modifications in 2002 greatly lowered cost.

Table 2. Proposed recommendation of FY 200 Inter-Regional harvest monitoring and Traditional Ecological Knowledge investigation plans for funding consideration. Proposed recommendations are shown with bold type, and noted with "Yes" in the "Recommendation" column.

			Requested Budget		
FIS #	Title	Recommendation	2002	2003	2004
02-043	**Alaska Subsistence Fisheries Database GIS Integration**	**Yes**	**$27.5**		
02-047	Alaska Subsistence Salmon Harvest Timing (Phase 1): Bristol Bay, Chignik District, Cook Inlet, and Kuskokwim Drainage	No	$14.0	$14.5	
	GRAND TOTALS		$41.5	$14.5	$0.0
	TARGET BUDGET LEVELS		$35.0	$0.7	$79.9
	PROPOSED SELECTIONS		**$27.5**	**$0.0**	**$0.0**

- Funding requested for the three stock status and trends studies advanced for investigation plans totaled approximately $136.6 thousand for fiscal year 2002, while a total of $70.0 thousand is available.

- The Technical Review Committee recommended funding for two studies in fiscal year 2002 **(Table 1)**. Total cost for these projects in fiscal year 2002 is anticipated to be about $77.6 thousand, which is about 10% more than the target budget level.

- Although the Technical Review Committee had asked for a proposal to form a working group to examine catch-and-release mortality of fishes, they did not recommend the submitted study be funded. This decision was based on budget limitations and the greater perceived strategic importance of two other studies. One would seek to change existing methods used to set salmon spawning goals and sustain subsistence harvests, while the other would complete database work begun in fiscal year 2000 for the Arctic, Yukon, and Kuskokwim regions.

Recommendation Process – Harvest Monitoring and Traditional Ecological Knowledge Studies

- Two studies were advanced for Investigation Plan development in the Harvest Monitoring and Traditional Ecological Knowledge categories **(Table 2).** Both of these address the issue of Harvest Information Access.

- The Technical Review Committee recommended funding for one study in fiscal year 2002 **(Table 2).** Total cost of this project in fiscal year 2002 is anticipated to be about $27.5 thousand, which is about 21% less than the target budget level.

- Both studies had technical merit, would be done by experienced investigators, and would contribute to capacity building. However, the recommended study, which would integrate two existing statewide databases into a single Geographic Information System to enhance availability and use, was thought to have greater strategic importance than the other study, which would make subsistence harvest timing information easier to access and use.

Funding Recommendation Summary

- Three studies, two Stock Status and Trends studies and one Harvest Monitoring/Traditional Ecological Knowledge study, were recommended for funding with a cost of $104.0 thousand in fiscal year 2002 **(Tables 1, 2, and 3).**

- All funding for these three studies would go to non-government organizations and state agencies **(Chart 1).**

- About 11% of the funds for these three studies ($12.0 thousand) would be used for local hire, while investigators would contribute $28.0 thousand in matching funds **(Table 4).**

Table 3.

FY 2002 Inter Regional Projects

Region 7. Inter regional

Type A . Stock Status & Trends

Doc #	Agency/Org	Title	NGO $	Fed$	State $	Total $
02-025	UAF, UW	Development of general method for calculation of sustainable subsistence harvest	$45,741.00	$0.00	$0.00	$45,741.00
02-069	ADFG-CFD	Develop Shared Fishery Database	$0.00	$0.00	$31,900.00	$31,900.00
02-071	ADFG-SFD, USFS	Assessment of Scientific Studies Relating to the Practice of Catch-and-Release Fishing in Western and Interior Alaska	$0.00	$0.00	$59,000.00	$59,000.00
Total			$45,741.00	$0.00	$90,900.00	$136,641.00

Type B. Harvest Monitoring/TEK

Doc #	Agency/Org	Title	NGO $	Fed$	State $	Total $
02-043	ADFG-SD	Alaska Subsistence Fisheries Database GIS Integration	$0.00	$0.00	$27,525.00	$27,525.00
02-047	ADFG	Alaska Subsistence Salmon Harvest Timing (Phase I): Bristol Bay, Chignik District, Cook Inlet, and Kuskokwim Drainage	$0.00	$0.00	$13,991.29	$13,991.29
Total			$0.00	$0.00	$41,516.29	$41,516.29
Grand Total			$45,741.00	$0.00	$132,416.29	$178,157.29

Chart 1. 2002 Inter–regional funding distribution

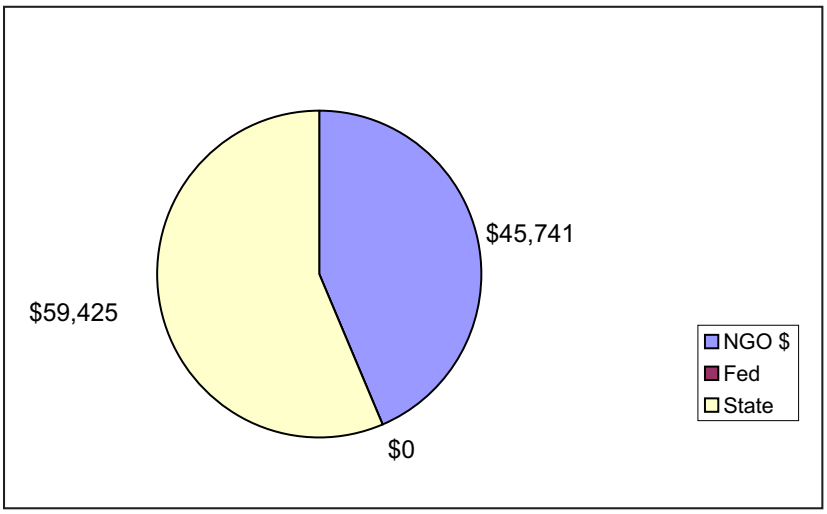


Table 4.

2002 Local Hire and Matched Funds Report Inter Regional

Region **7. Inter regional**

Type **A . Stock Status & Trends**

Doc #	Agency/Org	Title	Local Hire $	Matched $
02-025	UAF, UW	Development of general method for calculation of sustainable subsistence harvest	$0.00	$0.00
02-069	ADFG-CFD	Develop Shared Fishery Database	$12,000.00	$28,000.00
02-071	ADFG-SFD, USFS	Assessment of Scientific Studies Relating to the Practice of Catch-and-Release Fishing in Western and Interior Alaska	$0.00	$0.00
Total			$12,000.00	$28,000.00

Type **B. Harvest Monitoring/TEK**

Doc #	Agency/Org	Title	Local Hire $	Matched $
02-043	ADFG-SD	Alaska Subsistence Fisheries Database GIS Integration	$0.00	$0.00
02-047	ADFG	Alaska Subsistence Salmon Harvest Timing (Phase I): Bristol Bay, Chignik District, Cook Inlet, and Kuskokwim Drainage	$0.00	$6,000.00
Total			$0.00	$6,000.00
Grand Total			$12,000.00	$34,000.00

- Investigation plans not selected for funding this year will not automatically become eligible for funding consideration next fiscal year. Investigators need to submit new proposals requests to fund this work in fiscal year 2003.

Study Recommendations, Descriptions, and Justifications

* Additional details about each project can be found in the sections that follow. For each project, we have included the Technical Review Committee recommendation, a project description, and the technical justification for the recommendation.

- Study information is organized into two sections. The first contains Stock Status and Trends studies information, while the second contains Harvest Monitoring and Traditional Ecological Knowledge studies information. Within each section, studies are organized by their assigned numbers, in increasing order.

Recommended For Funding

02-025
Development of General Method for Calculation of Sustainable Subsistence Harvest

Investigator(s): University of Washington, School of Aquatic and Fishery Sciences; University of Alaska Fairbanks, Juneau Center, School of Fisheries and Ocean Sciences; Alaska Department of Fish and Game, Division of Commercial Fisheries

FY2002 Budget: $45,741.00

Total Budget (3 years): $168,910.00

Geographic Area: Inter-Regional

Information Type: Stock Status and Trends

Issues:

A key question in management of all subsistence fisheries in Alaska is determining the level of sustainable subsistence harvesting. This project will develop a new paradigm and algorithm for calculation of sustainable levels of subsistence harvesting in the form of a protocol and computer program for analyzing available data on a salmon stock and evaluating the long term consequences of different harvest policies.

Objectives:

1) Develop a format for definition of subsistence fishery management objectives.
2) Use defined objectives to analyze utility functions for different levels of catch and different inter-annual variation in catches for defined subsistence user groups.
3) Develop computer software to evaluate alternative management policies.
4) Use a decision-analysis framework to analyze objectives, including evaluation of uncertainty.
5) Develop a protocol for using the computer software, consisting of a users manual, worked examples, and a web-based power-point demonstration of how to use the software and interpret results.

Methods:

The three major innovative components of the protocol to be developed would be (1) describing salmon population dynamics using ecosystem oriented models that move beyond fitting stock and recruitment data to Ricker models, (2) evaluating harvest policies that maximize objectives other than long-term maximum yield, and (3) using formal methods of statistical decision-analysis to incorporate uncertainty into the evaluation of consequences. Salmon population models would include components to simulate (1) dynamics of populations at low abundance densities, (2) errors in estimating spawning stock and recruitment, (3) effects of marine derived nutrients in freshwater systems on salmon production, (4) effects of sub-stock structure within the "stock"

being managed, (5) forms of compensatory mortality other than Ricker model type, (6) implementation error associated with estimating run size and catch in a year, and (7) effects of oceanic regime shifts on salmon production. The computer program developed would be written using AD Model Builder software (Otter Software, Nanaimo B.C.), and the user interface would be programmed in EXCEL to provide a user-friendly format for data entry and output. Workshops and meetings would be scheduled during the project to gather and disseminate information among agencies and organizations.

Deliverables/Products:

The final product of this project would be a computer software package and protocol that should greatly enhance the ability of fisheries management agencies and organizations to evaluate alternative subsistence harvesting regimes. Reports would also be written at the end of each work year to describe methods, data, results and accomplishments, as well as any proposed changes in design or methods. These reports would be produced in both paper and electronic format, and provided to the Office of Subsistence Management as well as the Alaska Resources Library Information System (ARLIS).

Experience of Investigator(s):

The investigators from University of Washington and University of Alaska have extensive experience in all aspects of this project and have been leaders in salmon research, particularly in the area of quantitative stock assessment. They have worked closely with management agencies and various user groups to evaluate salmon spawning goals and management policies, and have held workshops on various fishery topics for both professional and lay audiences.

The investigator from Alaska Department of Fish and Game has worked extensively on applied salmon research and management topics, including scientific evaluation of harvest policies.

Partnerships/Collaboration/Consultation:

While the software developed by this project would primarily be used for analyses conducted by professional biologists working for agencies or regional groups, subsistence user groups would have a key role in developing subsistence fishery management objectives and evaluating resulting products. Consultations have already taken place with Bristol Bay Science Center, Aleutians East Borough, Chignik Regional Aquaculture Association, and Alaska Department of Fish and Game. Further consultations would occur with other regional organizations and federal fishery management agencies.

Justification:

The overall concept for this work has merit, and new methods for establishing salmon escapement goals and subsistence harvest strategies would benefit both management agencies and subsistence users. The investigators propose to develop methods and software to estimate sustainable subsistence salmon harvests. Methods currently being used are based on achieving maximum sustained yield, which is not a suitable management goal for management of subsistence fisheries, and on empirical models, which do not incorporate uncertainty. The technical approach proposed to develop this methodology is excellent. Two modifications are needed

improve the usefulness of this work to federal subsistence fishery program. First, the focus of proposed efforts was directed primarily at sockeye salmon and state-managed subsistence fisheries. This project needs to be broadened to include other salmon species and to focus on federally managed, rather than state managed, subsistence fisheries. The most difficult federal subsistence management issues currently exist for chinook and chum salmon runs to the Yukon and Kuskokwim Rivers. Therefore, at least one of these species in one of these systems should be used as a test case for model development and evaluation. Second, a staff member from a federal fishery management agency needs to be added as a partner to serve a function analogous to that served by the state management agency partner. This would help ensure acceptance of this tool by both state and federal fishery management agencies.

The investigators and their organizations or agencies have both the administrative and technical expertise to conduct this work. At least one of the investigators also has a great deal of experience conducting effective workshops with both professional fishery biologists and resource users on various stock assessment procedures and fisheries problems.

Partnership and capacity building aspects of this proposed study, while improved from that described in the original proposal, still require further refinement and development. The Investigators have selected an issue with widespread interest among federal subsistence users and management agencies, but need to ensure that meaningful participation and information exchange occurs with local communities and residents, and that local support exists for the proposed study. No letters of support for this work were received from local organizations, and consultations with these organizations have been too limited. While technical reviewers and fishery managers generally see a benefit from conducting the proposed work, Regional Advisory Council members and federal subsistence users may not understand or agree with this approach. Therefore, investigators may need to put more effort into explaining the need for this work and its products to this audience.

Recommended For Funding

02-069
Develop Shared Fishery Database

Investigator(s): Division of Commercial Fisheries, Alaska Department of Fish and Game

FY2002 Budget: $ 31,900.00

Total Budget (1 year): $ 31,900.00

Geographic Area: Inter-Regional

Information Type: SST

Issues:

This is a continuation and next phase of a database inventory, planning and development project funded in fiscal year 2000 (*Shared Information for Fishery Management in AYK, FIS00-016*). A data management system for management of fisheries in the Arctic/Kotzebue/Norton Sound, Yukon River, and Kuskokwim River federal subsistence fisheries management regions does not currently exist. The goal of this project is to develop a comprehensive data management system for use by all governmental and public entities involved in managing these fisheries. Ready access to critical fisheries information would be beneficial to both management agencies and subsistence users.

Objectives:

1) Aggregate diverse sources of fishery data.
2) Error-check and correct historic data as necessary.
3) Begin standardizing data formats, where necessary, for inclusion into a centralized database.
4) Develop intermediate data entry, editing and reporting programs for area staff so that more thorough error checking, editing and a standard format of data can begin as soon as possible.

Methods:

This would be the second year of a project first funded in fiscal year 2000. Activities for fiscal year 2002 would focus on completing any remaining data inventory, editing, entry, and documentation; and to correct or reconfigure important data sources that are currently in a format that would be especially difficult to incorporate into a data management system. The major information sources needed for an information management system were identified as subsistence and commercial harvests, spawning escapements, and ancillary biological data such as age, sex and size. Each of the specific objectives listed above would be completed for each of these data sources. Alaska Department of Fish and Game staff in area offices would transfer biological and recent spawning escapement data to a centralized location, Division of Commercial Fisheries Region III Biometrics Section in Anchorage, so that the work can be accomplished. Area office staff would work closely with Biometrics Section staff in editing and correcting historic data. Several critical data sources have already been identified as needing immediate attention to prevent data loss. Editing and reporting programs would also need to be developed for some

data sources. Additional problems or needs would be identified and, if possible, corrected during this next year of the project.

Deliverables/Products:

A project report detailing accomplishments; descriptions of which data have been aggregated, edited, and reformatted; and examples or descriptions of intermediate data entry forms and reports would be submitted by October 31, 2002. Also available would be an updated inventory of data sources developed during 2000 activities, including documentation on data content, storage format, any particular problems, and a primary contact; and updated examples of management reports, data access, data linkage types, and data summaries required by parties involved in fishery management.

Experience of Investigator(s):

The principal investigator has over twenty years of experience in the Arctic-Yukon-K Region as both a fisheries biologist and biometrician for Alaska Department of Fish and Game. She has extensive knowledge of how fishery data is collected, stored, compiled and interpreted to support resource management needs. She is familiar with modern database software, uses database software on a regular basis, and has developed and maintained several smaller-scale data management systems. She also worked for several years as the primary region contact and contributor on a closely related, federally funded project to aggregate salmon escapement data into a central Geographic Information System. While not assigned to this project, the Division of Commercial Fisheries has staff in their Headquarters office that could provide assistance to the principal investigator. These staff members develop and maintain several large-scale client-server databases, such as the Mariner data management system used in Bristol Bay and the Alex/IFDB data management system used in Southeast.

Partnerships/Collaboration/Consultations:

Efforts would be made to hire local residents as technicians or fisheries biologists to assist Alaska Department of Fish and Game area staff and the principal investigator with data editing. Training in the use of computer software would be provided.

Fisheries management activities within the Arctic-Y-Kuskokwim region has more and more become a cooperative effort among the Alaska Department of Fish and Game, local organizations such as the Kuskokwim River Salmon Management Working Group and the Yukon River Drainage Fisheries Association, and federal agencies. Activities have included fisheries management and restoration planning, data collection and information sharing, and pre-season, in-season, and post-season consultations. These efforts have been developing for over a decade, have increased the participation of rural residents in the management process, and have improved the management of the region's fisheries.

Justification:

This work was started in 2000 as study FIS 00-016, which has the ultimate goal of developing a shared database of fishery information for the Arctic-Yukon-Kuskokwim regions. The original proposal requested multiple years of funding to complete the work, but only a single

year of activity was approved by the Federal Subsistence Board in 2000 to complete two objectives: 1) comprehensive inventory of available data, and 2) determination of information needs of government agencies and non-government organizations involved in cooperative fishery management. This work has generally proceeded on schedule, and both 2000 project objectives will be successfully completed. A detailed progress report was submitted June 15, 2001, a short performance report is due September 3, 2001, and the final report is due December 30, 2001. A 2001 proposal to continue these efforts was requested by the Technical Review Committee. It was advanced to the investigation plan stage as study FIS 01-016, but did not receive further consideration because the investigator did not require funding until 2002. Activities proposed for 2002 consist of 1) aggregating the diverse sources of fishery data identified in 2000, 2) checking and correcting errors, 3) standardizing data formats to facilitate inclusion into a centralized database, and 4) developing intermediate data entry, editing and reporting programs to ensure more thorough error checking, editing, and standard formatting during future data collection activities. The strategic importance of making fisheries information easily accessible through a shared database is quite high. While the final scope and design of the database will be influenced by results and recommendations of the Database Working Group funded in 2001 (study FIS 01-154), proposed objectives for the 2002 study are general enough to be successfully achieved without waiting for final recommendations and protocols from the Working Group. The investigator has incorporated proposal review recommendations into the investigation plan, and has considerably reduced the amount of funding requested for this study. Full-time personnel costs would be covered by the State as in-kind matching funds. Efforts would be made to hire local residents to assist in data entry, editing, and formatting. This would help foster local interest and ownership in the final product and strengthen partnership and capacity building aspects of this work.

Not Recommended For Funding

02-071
Assessment of Scientific Studies Relating to the Practice of Catch-and-Release Fishing in Western and Interior Alaska

Investigator(s): Sport Fish Division, Alaska Department of Fish and Game

FY2002 Budget: $ 59,000.00

Total Budget (2 years): $ 246,200.00

Geographic Area: Inter-Regional

Information Type: SST

Issues:

Contemporary sport anglers consider catch-and-release a legitimate, responsible, and often desirable fishing practice. However, subsistence users in western and interior rural Alaska do not release their catches and question whether there is sufficient knowledge, applicable to Alaska, to determine the fate of released fish and to assess the potential effects of catch-and-release sport fisheries on subsistence fishing opportunity. A comprehensive summary of scientific studies of catch-and-release is not available to fishery managers and resource users, nor has there been any assessment or review of potential applications of catch-and-release practices to western and interior Alaskan fisheries. This project would coalesce and review existing information regarding effects of catch-and-release, and then convene a working group composed of subsistence users, sport users, and fishery managers to examine this information. The working group would develop recommendations for a comprehensive strategy regarding assessment of catch-and-release effects on subsistence fishery resources.

Objectives:

1) Coalesce available scientific studies concerning effects of catch-and-release on fish and assess their reliability and applicability to Alaskan fisheries.
2) Produce a catch-and-release database of these studies on the Internet, including references, comments on reliability and applicability to Alaskan fisheries, and links to each study.
3) Make specific recommendations to state and federal agencies for interpreting and using existing information, for establishing protocols for conducting studies, and for conducting any needed studies.

Methods:

During the first year of the project, Division of Sport Fish, Alaska Department of Fish and Game, staff would coalesce available information regarding effects of catch-and-release on fishes.

A comprehensive literature search would be conducted of all scientific journals, and additional searches would be made for state, federal, and tribal reports, academic theses, and other sources of information. Most searches would be done through the Alaska Resources Library and Information Services. All studies found would be reviewed for both scientific reliability and applicability to Alaskan fisheries. For each study reviewed, an abstract or summary, complete reference, and review of reliability and applicability would be made available on the Division of Sport Internet site. Full-text, downloadable files of each study report would also be made available, if permission could be obtained.

During the second year of the project, a working group, composed of subsistence users, sport users, and fishery managers, would be convened to examine compiled catch-and-release study information. Group members would include fishery biologists and social scientists from state and federal agencies, as well as representatives of user groups. The group would review compiled catch-and-release information, make recommendations for interpreting and using the information, inventory catch-and-release fisheries within the area covered by the project, and identify any issues of concern. The group would also make recommendations on the needed for any further studies of catch-and-release effects, including design and conduct any needed studies, and how to use this information in management of fisheries resources. All this would be used to design a comprehensive strategy to further assess catch-and-release issues in western and interior Alaska.

Deliverables/Products:

Two main products would be available from this work. The first would be a centralized database, accessible from the Division of Sport Fish Internet site, of catch-and-release study information, in the form of full-text downloadable files and annotations concerning reliability and applicability. The second would be a written report that could serve as a comprehensive strategy guide for assessing catch-and-release issues in western and interior Alaska. The report would include a review of available catch-and-release information, recommendations for interpreting and using this information, an inventory of catch-and-release fisheries within the project area, identification of issues of concern; recommendations for further studies of catch-and-release effects, protocols on design and conduct of any needed studies, and suggestions on use of this information managing fisheries resources.

Experience of Investigator(s):

The Alaska Department of Fish and Game, Division of Sport Fish, has a long history of high quality fisheries data collection and analysis activities. The principal investigator has a strong technical fisheries background that has included the design and conduct of catch-and-release mortality studies. Other staff biologists assisting with this work also have many years of experience conducting and evaluating catch-and-release studies as well as experience in coalescing data from diverse sources. In addition, the investigator will have access to biometric support as well as computer specialists with expertise in creating and maintaining Internet sites. The Alaska Department of Fish and Game is a founding member of Alaska Resources Library and Information Services and has a full-time librarian available to assist with searches and obtaining copies of catch-and-release studies.

Partnerships/Collaboration/Consultations:

Development of a comprehensive database on catch-and-release effects on fishes would provide a valuable tool for future capacity building between fishery management agencies and affected user groups. Formation of a working group composed of subsistence users, sport users, and fishery managers to examine this information and develop recommendations would build partnerships and develop the capacity of subsistence users to actively participate in the development of resource management strategies.

Justification:

The Technical Review Committee requested this proposal due to broad concern with effects of catch-and-release sport fishing within many arctic, western, and interior Alaska rural communities. Regional Councils for these geographic areas have identified concern with delayed mortality resulting from catch and release fishing as an issue, and have request specific studies addressing the following issues: 1) long-term mortality of released angler-caught sheefish, char, and other freshwater species, including fish that are caught multiple times; 2) delayed mortality of angler caught and released northern pike from the Innoko River and elsewhere; and 3) effects of catch and release fishing on salmon and trout behavior, mortality, and spawning success. The Technical Review Committee suggested that a working group be formed to address the general issue of catch-and-release hooking mortality by conducting an inventory of catch and release studies done within this area, examining the applicability of existing data on catch-and-release mortality as practiced within this area, and developing recommendations for any additional studies on catch-and-release mortality. The Office of Subsistence Management solicited this proposal as a vehicle to develop such a working group. Technical Review Committee requested several modifications to the original proposal and resulting investigation plan, and the investigator incorporated most of these into the last version submitted. The cost of this effort has been substantially reduced from the original request, and does not seem unreasonable when compared to the cost of past working group funded under this program. Partnership and capacity building would occur through dissemination of information of catch-and-release fish mortality studies, through participation of subsistence users in the working group, and through review of working group products by Regional Advisory Councils, rural residents, and local and regional organizations. Some reviewers still have concerns about using Subsistence Fishery Resource Monitoring Program funding to conduct work on effects of catch-and-release sport fishing on fishes. Also, while several Regional Advisory Councils and local communities have identified catch-and-release fishing effects on local fishery resources as an issue of concern, no letters of support for this study have been received. Therefore, the strategic importance of this particular study to subsistence users may not be as great as was originally anticipated by the Technical Review Committee.

Recommended For Funding

02-043
Alaska Subsistence Fisheries Database GIS Integration

Investigator(s): Division of Subsistence, Alaska Department of Fish and Game

FY2002 Budget: $ 27,525.00 **Total Budget (1 year):** $ 27,525.00

Geographic Area: Inter-Regional **Information Type:** HM/TEK

Issues:

Public access to information on subsistence fisheries is an important part of the federal management and regulatory process. There is a need to make information on subsistence harvests more easily accessible in a format that is easy to use and understand. Since fishery resource use is highly regionalized within the state, a Geographic Information System would allow users to better visualize and understand where and how different communities use various fish species throughout the year. Being able to use maps to illustrate this information would be more effective and intuitive than depictions of these data using tables and charts.

Objectives:

1) Link subsistence fisheries information contained within the Alaska Subsistence Fishery Database maintained by Division of Subsistence, Alaska Department of Fish and Game to the Geographic Information System of anadromous stream information maintained by Division of Habitat, Alaska Department of Fish and Game.
2) Create search and query options, tools, and menus within integrated database to allow users to graphically display subsistence fishery information by community, location, or drainage.
3) Provide access to the Geographic Information System on the World Wide Web.

Methods:

The Southeast Subsistence Fisheries Geographic Information System Database, developed by the investigator and his agency during studies FIS 00-039 and 01-103, would serve as a model for this statewide project. The system of organization of numerical harvest data and analytical approaches established for the Southeast project would be adopted for the statewide information. Spatial relationships between fishing communities and streams have previously been developed in various community use area research and Southeast Alaska harbor seal harvest research projects.

To keep pace with the changing Geographic Information System technology, the Division of

Subsistence would upgrade its ArcView version 3.2 software to the newly released version 8.1. Customization of this software would be accomplished using Visual Basic programming language to design query boxes, pull-down menus, summary maps and chart options. Special buttons, toolbars, and menus would be programmed to perform specific tasks for working with Alaska Subsistence Fishery Database information. To accomplish this in the most efficient and effective manner, the investigator would attend a training class in Visual Basic.

Existing Alaska Department of Fish and Game electronic map coverage would be used as base maps for the Geographic Information System. Features on the maps would be linked to data records from the Alaska Subsistence Fishery Database by converting subsistence fishery data from a Microsoft Access format to Dbase and then transferring these data into ArcView. This linking, or geo-referencing, of graphically depicted landscape features to data records was anticipated during development of the Alaska Subsistence Fishery Database through the use of the same stream reference codes contained in the anadromous fish stream Geographic Information System data catalogue maintained by Habitat and Restoration Division, Alaska Department of Fish and Game. Information related to a specific community would be linked to the map using the community name as the geo-referencing variable.

In addition to the data contained in the Alaska Subsistence Fishery Database, the Geographic Information System would contain other geographic data relevant to subsistence fisheries. For example, locations of regulatory markers defining different subsistence fisheries, showing the boundaries in and around the water bodies where fishing is permitted, would be available in the program.

The Geographic Information System would be designed and made available for public use as both a self-contained, portable system on CD-ROM, to be run using either ArcView GIS software or the free Arc Explorer program, and as an Internet application. Users would be able to select harvest information of interest by using search criteria such as year, community, fish species, and water body. Results of database selections would be displayed in the form of graphs and charts within the project. Queries based on data parameters such as communities with greatest harvests, communities with a certain level of participation, or streams with a certain number of fish harvested, would also be possible. Communities and water bodies that fit the criteria used would also be illustrated on a map. The uniform data structure of the Geographic Information System and database projects would ensure that functionality of the system would be maintained with addition of each year's harvest information.

Deliverables/Products:

The Alaska Department of Fish and Game, Division of Subsistence will produce a CD-ROM of the completed project, containing a number of scalable maps with geographic features linked to the subsistence fisheries harvest information found in the Alaska Subsistence Fishery Database. The CD-ROM will be delivered to, and demonstrated for the Office of Subsistence Management, Fisheries Information Services Division, and training in the use of the GIS will be made available. CD-ROMs would also be made available to other appropriate federal and state agencies, Regional Subsistence Councils, as well as local communities and other interested parties. As

needed, local communities and Regional Advisory Councils would receive a demonstration of the project. The Internet-based application will also be demonstrated and made available to the public.

Experience of Investigator(s):

The Alaska Department of Fish and Game, Division of Subsistence, has generated, collected, and stored geographic information related to subsistence fisheries harvests for 20 years. The principal investigator has worked with Division of Subsistence spatial data for over two years. Projects he has worked on and supervised include a Southeast Alaska harbor seal harvest location atlas, ten different community harvest use area mapping projects, and a Southeast Alaska Subsistence Fisheries Geographical Information System Database (FIS 00-039 and FIS 01-103), which would served as a model for this proposed statewide project.

Partnerships/Collaboration/Consultations:

As has been done for the Southeast project, the Alaska Subsistence Fisheries Geographic Information System project would be available for review and use by Regional Subsistence Councils, local governments, environmental programs, and resource managers. The project would have a statewide perspective to provide access to data contained in the Alaska Subsistence Fisheries database. Individual communities or agencies could use the database as a tool in their own research, with maps and charts available for illustration and organizational purposes. For example, Division of Subsistence meetings with the Organized Village of Kake in the summer of 2000, to demonstrate and discuss the Southeast Subsistence Fisheries Geographic Information System project, led the Village to use the Geographic Information System as a model for their own traditional use area mapping and documentation projects. Other groups may choose to modify the Geographic Information System for their own particular needs as well.

Justification:

This project would provide a graphic means for selecting, analyzing, and displaying subsistence fishery information. Development and distribution of this Geographic Information System database is intended to facilitate research and fisheries management by local organizations and individuals as well as agencies. Some Regional Advisory Councils have expressed concern about the value of statewide proposals, since they feel relationships to regional priorities, regional partnerships, and regional benefits are often unclear. Benefits of this project include making in- and postseason data more easily and widely accessible via the Internet or self-contained CD-ROM systems. This information would be available as a statewide database, using a Southeast project conducted by the investigator as a prototype. Products from this work would be immediately useful for fishery managers, and would serve to build capacity for regional and local organizations by providing assess to important information. Project objectives are clear and achievable, methods are technically sound, and identified products would be of wide general use. The investigator and his agency have the technical and administrative expertise to complete this project, as demonstrated by their established track record with similar projects. Consultations are

ongoing at the regional level. While there are no local partners to assist in conducting the work, results of the project would be readily available to agencies and communities in a familiar format. Several local residents, communities, and organizations have expressed concern with making some types of subsistence information widely available through publicly accessible databases, particularly on the Internet. The Office of Subsistence Management will be working with both the Solicitors Office and Contracts and Government Services Division to identify appropriate information sharing standards that can be established under existing laws and regulations. This issue is also being addressed the Statewide Database Working Group funded under study FIS 01-054.

Not Recommended For Funding

02-047
Alaska Subsistence Salmon Harvest Timing (Phase 1): Bristol Bay, Chignik District, Cook Inlet, and Kuskokwim Drainage

Investigator(s): Division of Subsistence, Alaska Department of Fish and Game

FY2002 Budget: $ 13,991.29

Total Budget (2 years): $ 28,488.00

Geographic Area: Inter-Regional

Information Type: HM/TEK

Issues:

There is a lack of ready access to information on subsistence salmon harvests timing by community and harvest location. Such information is often needed to assess inseason harvest results, to evaluate impacts of regulatory changes on subsistence salmon harvest, and to select research sites for specific species and stocks. This project would also help to improve the practice of recording harvest dates on subsistence permits and calendars by demonstrating how harvest timing information can benefit subsistence users.

Objectives:

1) Provide a database of subsistence salmon harvests by date, species, and location for subsistence fisheries in Bristol Bay, Chignik District, Cook Inlet, and the Kuskokwim Drainage.
2) Graphically depict subsistence fishery harvest timing through charts showing percentage and estimated numbers of annual daily and cumulative harvest for selected time periods.
3) Provide a standard framework, based upon the Alaska Subsistence Fisheries Database, which can be easily updated and expanded to accommodate harvest-timing data from all subsistence fisheries.
4) Promote daily reporting of subsistence harvests on permits and calendars by demonstrating the utility of harvest timing information in fisheries management.

Methods:

This project would provide harvest timing information from subsistence salmon fisheries harvest assessment programs administered by the Division of Subsistence, Alaska Department of Fish and Game, in Bristol Bay, Chignik District, Cook Inlet, and the Kuskokwim Drainage. It would serve as a model for providing this information on a statewide basis. In certain situations, when salmon run timing information is not available, harvest timing can be used to estimate run timing.

However, harvest timing can often differ from salmon run timing due to local conditions and management regulations that can influence harvest and preparation activities disproportionately to resource availability.

The source of harvest timing information used for this study would be reported harvests by date between mid-May to mid-October, which would accommodate the general period of salmon runs. The harvesting of spawned out salmon ("redfish") is poorly represented by dates of harvest, since this activity frequently occurs after permit reporting period or village surveys end. Thus, estimates of numbers of species harvested would exclude late season harvests of redfish, which is a common occurrence in certain fisheries within Bristol Bay and the Chignik areas. Harvests without specific dates would be excluded from analyses. Timing of harvests of individual species by location and user residence would be extracted from permits and calendars for each subsistence fishery. Efforts would be made to identify community, location, and year combinations for which harvest information is poorly documented. Timing data would be placed within a database modeled after, and using conventions developed for the Alaska Subsistence Fisheries Database and established by the Subsistence Fisheries Harvest Assessment Working Group in 2001 during study FIS 00-017. The resulting database would be constructed so that it could be queried for fishery, species, and location to produce tables and charts of harvest timing for specified years or multiyear averages representing either percentages or estimates of harvest numbers. Use of this database would replace the existing approach of creating tables and charts within Excel. Not only the existing method tedious, since it requires previous summarizing of data, but it also entails reiteration of all steps for each update of a year and location. This has resulted in limited usage of this information, use of out-of-date information, and a greater potential for the introduction of errors.

The summarized harvest timing information from the database would be readily available in seven formats: 1) tables showing daily percentage and cumulative percentage harvests by date; 2) tables showing estimated numbers of daily harvest and cumulative harvest by date (exclusive of "post-season" harvests); 3) charts of cumulative percentages; 4) charts of estimated cumulative inseason harvests; 5) charts of daily percentages; 6) charts of estimated daily inseason harvests; and 7) data to export into Excel spreadsheets for further analysis.

The database would be demonstrated in Anchorage for interested agencies and organizations, as well as during regional harvest monitoring workshops organized under study FIS-01-107. Initially, the harvest-timing database would be distributed on CD-ROM as separate Access 2000 entities to make it compatible with the limited computer resources that exist in many rural communities. Future integration of the harvest-timing database with the existing Alaska Subsistence Fishery Database would be explored for usefulness and utility.

Deliverables/Products:

The investigators would provide a CD-ROM containing both the Alaska Subsistence Fisheries Database and the Alaska Subsistence Harvest Timing Database in Microsoft Access 2000 to the Office of Subsistence Management and other interested agencies and organizations. An intuitive menu system would allow immediate access to tables and figures by selecting the

fishery, location, and time period of interest.

Experience of Investigator(s):

The Division of Subsistence, Alaska Department of Fish and Game currently administers subsistence fisheries harvest reporting for the Bristol Bay area, Chignik area, Cook Inlet area, and the Kuskokwim Drainage; and has been responsible for the creation and maintenance of several databases that facilitate understanding and managing subsistence resources. Microsoft Access databases developed include the Alaska Subsistence Fisheries Database and the Community Profile Database.

Partnerships/Collaboration/Consultations:

All proposed work would be done using information collected as part of existing harvest assessment and permit systems, which have existing partnerships with various rural communities and organizations. The model developed would allow opportunities for collaboration with organizations with limited database experience that wished to add fisheries (both salmon and non-salmon species) to the database.

Justification:

This statewide project would provide harvest timing information for subsistence fisheries managed by Alaska Department of Fish and Game, and could be used as a model to develop similar capabilities for other subsistence fisheries within the state. A summary of ten years of existing data would be included in a Microsoft Access database, which would be distributed on CD-ROMs. The data would be readily available to all users, and in this sense builds capacity for partners. Bristol Bay, Chignik, Cook Inlet, and Kuskokwim Drainages all have rivers and streams under federal fishery management jurisdiction. While this proposal does not directly address an issue identified and prioritized by the Regional Advisory Councils, the project would facilitate state and federal management of salmon, including some populations of concern. By providing easy access to harvest timing curves, this type of information would be more readily used in making management decisions. Study objectives are clear and achievable. The study is appropriately designed, and the methods are technically sound. The products identified are acceptable, and would be of use to federal managers within a regional context. The investigator and agency both have technical and administrative expertise to conduct this work, as well as an excellent track record with past projects and cooperative ventures. The project would use existing subsistence data, so no additional field collections would be required. Consultations are ongoing at the regional level, and results would provide more ready access to the data for rural residents. The project would not employ or train any local residents, or be conducted in partnership with any local organizations. Several local residents, communities, and organizations have expressed concern with making some types of subsistence information widely available through publicly accessible databases, particularly on the Internet. The Office of Subsistence Management will be working with both the Solicitors Office and Contracts and Government Services Division to identify appropriate information sharing standards that can be established

under existing laws and regulations. This issue is also being addressed the Statewide Database Working Group funded under study FIS 01-054.